

A microscopic view of several cells, likely cancer cells, with prominent, glowing red and orange nuclei. The cells are rendered in a blue and white color scheme, with the nuclei providing a strong contrast. The background is a deep blue, and the overall image has a high-contrast, scientific feel.

# ACTIVATING AUTOPHAGY

Your Guide to Cellular Healing



Our society is seeing an epidemic of chronic degenerative inflammatory diseases. Conditions like heart disease, diabetes, cancer, dementia, Alzheimer's and Parkinson's are all on the rise. Our current medical system has no real answers when it comes to preventing these conditions and most people just assume, they are a normal part of aging.

The truth is that our bodies were created with an innate ability to heal themselves. Every day, your body goes to work to help repair damaged cells and cellular components while getting rid of metabolic debris. Unfortunately, our society today has created lifestyle habits that thwart this innate healing mechanism and overload our system with metabolic waste.

In this document, you will discover how to activate and optimize the mechanism of autophagy, which is essential for the self-healing and self-regulating processes of the body. Reading through and applying this information will make a huge difference in your life and save you from the unnecessary suffering that is plaguing mankind!

**\*\*\*The information in this document is not meant to diagnose or treat any medical condition. It is meant for educational purposes only and you are fully responsible for how you choose to use or not use this material\*\*\***

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# AUTOPHAGY

## WHAT IS IT AND 8 WAYS TO ENHANCE IT

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### Autophagy: What is It and 8 Ways to Enhance It

Autophagy happens when your body recycles and gets rid of old or excess cells (like fat) that don't serve a purpose or benefit your health. The major drivers of autophagy are cellular stressors such as nutrient deprivation brought on from various mechanisms including fasting, exercise and significant temperature change.

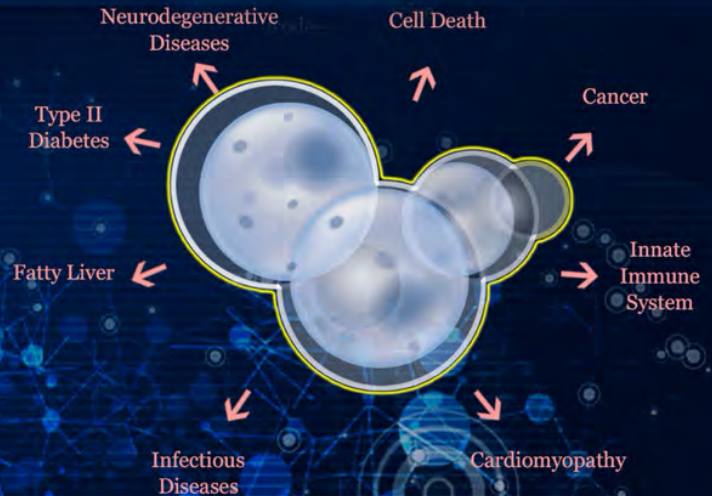
The Nobel Prize in 2016 was awarded to the Japanese researcher Yoshinori Ohsumi for his breakthrough work in helping us understand the process of autophagy and how it works. In this article, you will discover why autophagy is such an important concept and how to structure your life to optimize its benefits in your life.

# THE SCIENCE OF FASTING AND AUTOPHAGY

Fasting triggers autophagy - recognized as a crucial defense mechanism against malignancy, infection and neurodegenerative diseases.

Autophagy is a process of cellular self-digestion. Through autophagy, starving cells degrade materials within their own cells to provide necessary nutrients for more essential processes.

Autophagy is the way our cells “clean house” and “recycle the trash”.



## How Does Autophagy Happen:

The word Autophagy is derived from the Greek “Auto – Phagein” meaning “self eating.” This is a form of cellular recycling where the cell itself will metabolize various components in order to reuse those to build new and healthier cellular structures.

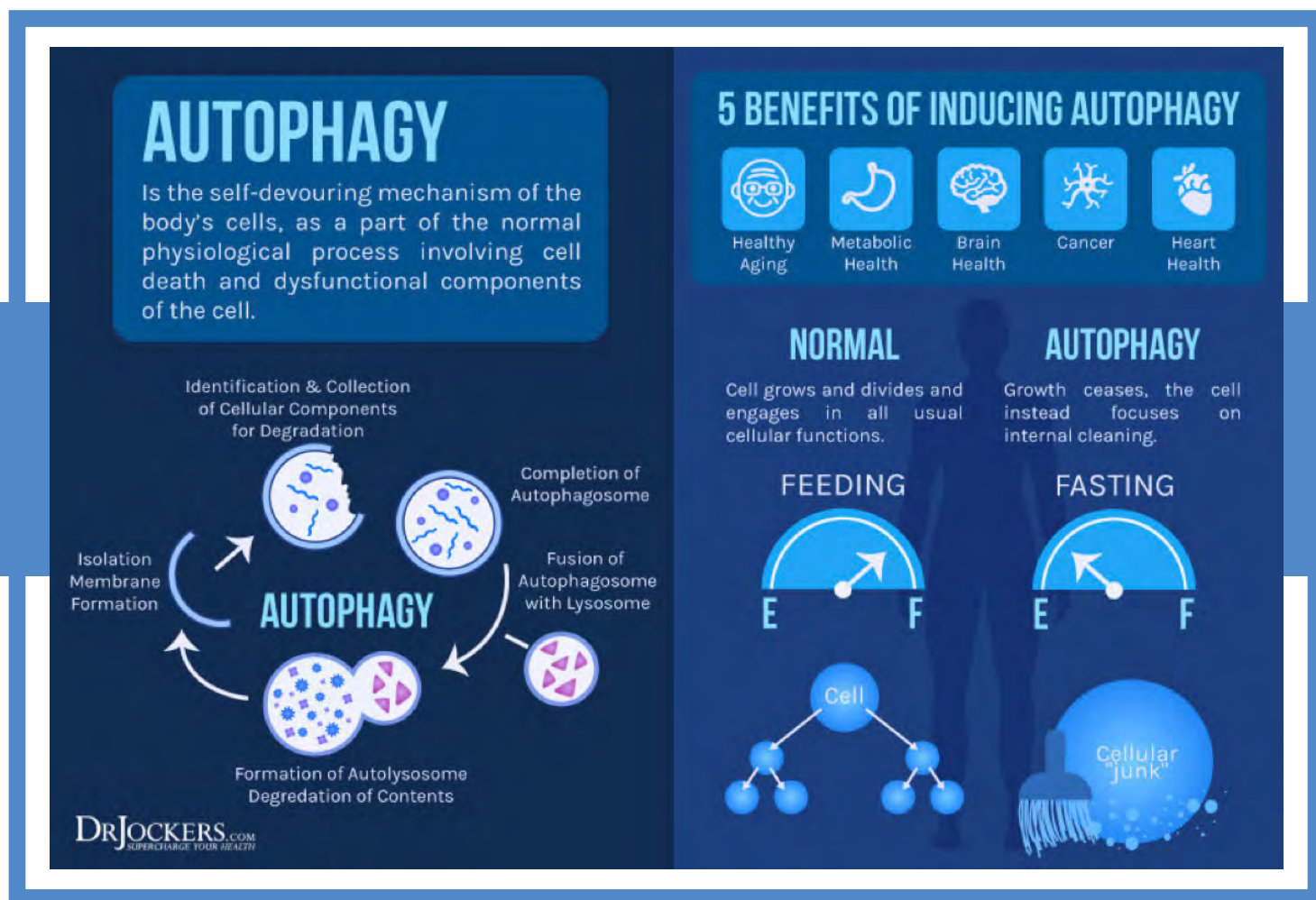
Within each cell there are a number of essential components called “organelles,” much like the various organs that make up our body. The way autophagy works is when the cell is exposed to stressors such as nutrient deprivation, it creates a transient double membrane structure called a phagophore. The phagophore expands and has a tremendous level of flexibility in regards to its ability to surround and sequester cellular components such as proteins, lipids and whole organelles (1).

Once it surrounds and encloses the components it is after, it delivers them to the lysosomes. The lysosomes are unique organelles that contain degrading enzymes to degrade the particular components they are released upon.



The major driver of autophagy is cellular stress. Stress refers to an environment that demands change. Our body is constantly looking for a level of physiological balance called homeostasis which is necessary for survival.

During times of nutrient deprivation such as fasting, exercise, etc. the body needs to load up on raw materials to fuel the metabolic machinery to produce the necessary energy for survival. To do this, the innate intelligence within our body signals to break down the older cells and cellular organelles that are working less efficiently to create newer cells that work to produce energy more efficiently (2).



## Benefits of Autophagy

It was very common for our ancestors to have stressful circumstances such as long periods of time without food, high intensity activity and excessive heat and cold. These demands stimulated a regular and healthy dose of autophagy within their cells.

The process of autophagy is occurring within all mammals at some level but creating a lifestyle that optimizes autophagy can be extremely beneficial for a number of reasons. Here are the top 5 reasons to support your body's natural autophagy process.



# Top 5 Benefits of Autophagy

- 1 Getting Rid of Senescent Cells
- 2 Improving Mitochondrial Health
- 3 Eliminating Viral Infected Cells
- 4 Reduces Cellular Apoptosis
- 5 Creates a Stronger and More Stress Resilient Body and Mind

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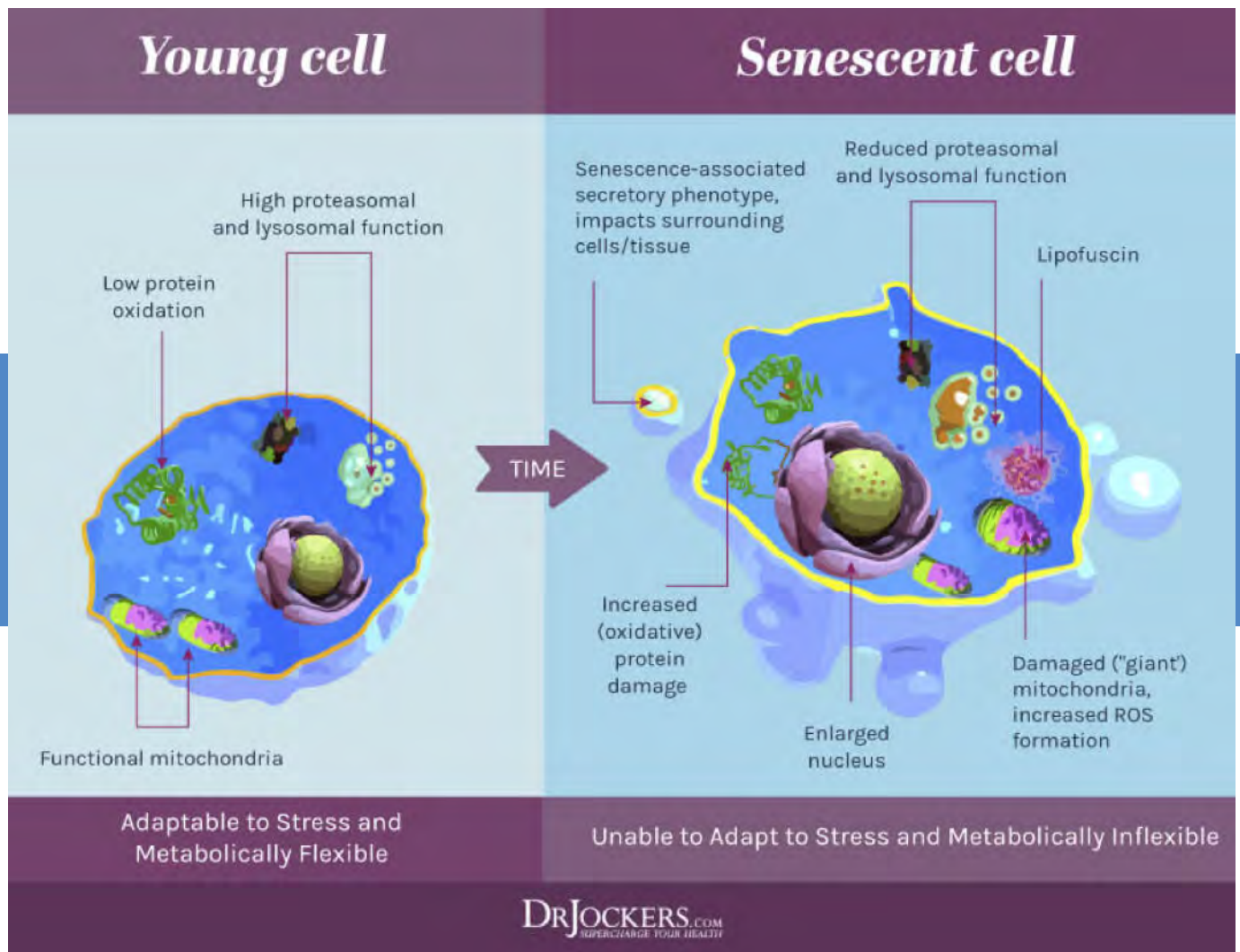


## Getting Rid of Senescent Cells:

All cells have a certain lifespan and younger cells have dealt with less wear and tear and are more efficient in their particular functions. A senescent cell is an older cell that is not functioning at a high level. It is still working but at a much lower level of efficiency and not effectively enough to maintain the overall health of an organ or tissue of the body. These cells are metabolically inflexible and have trouble using fatty acids for fuel. They rely on sugar/glucose metabolism and produce energy very inefficiently and create a lot of metabolic waste and produce cell signaling factors that promote inflammatory conditions in the body.

These are cells put the entire body at risk of the development of disease processes because of their dysfunction. While the development of senescent cell is a normal process, we should be removing these as fast as we create them through autophagy (3). As people age, we develop more of these decaying cells and therefore, the stimulation of autophagy is even more critical for the wellbeing of the individual.

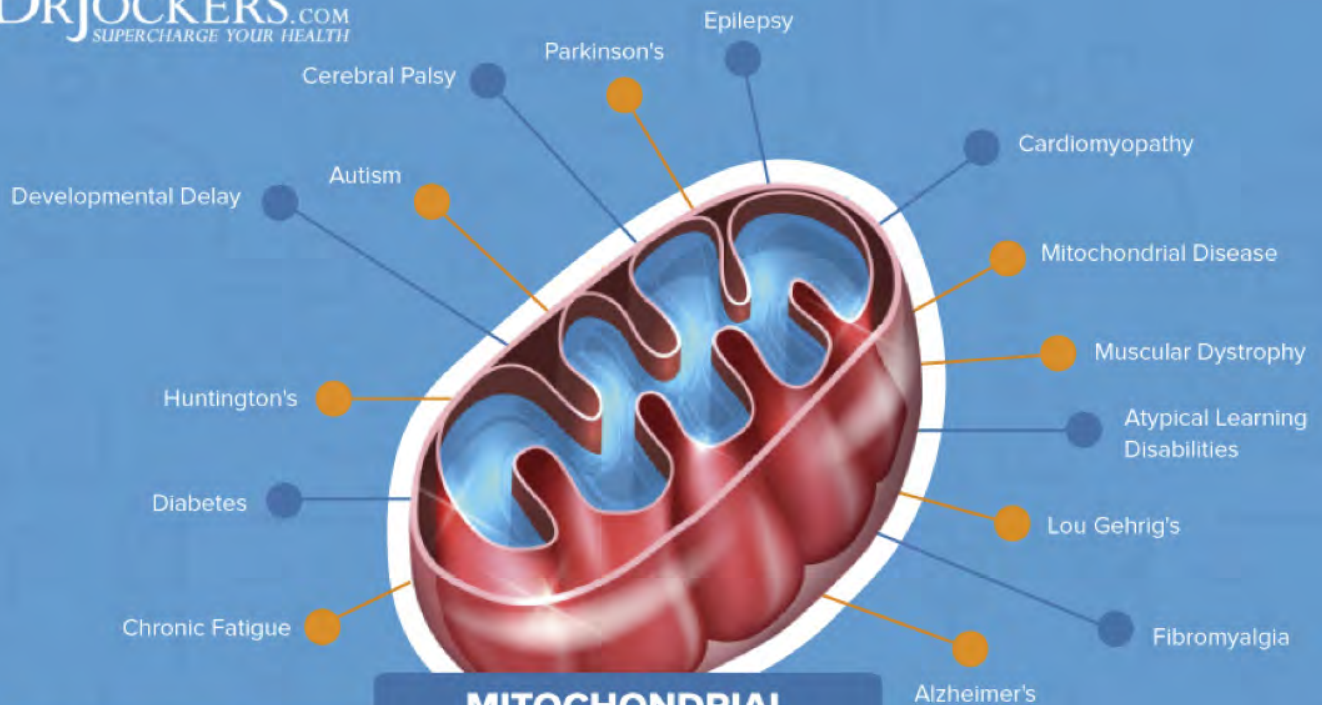




## Improving Mitochondrial Health

Within a cell we have mitochondria which are unique organelles that produce cellular energy. A healthy mitochondrion can use both glucose, fatty acids and ketones for fuel. When we train our body to create a large amount of energy from glucose, we end up producing a lot of free radicals and metabolic waste that damage the mitochondria.

Unless regular bouts of autophagy are stimulated, we end up with a large number of dysfunctional mitochondria that are metabolically inflexible and can only rely on glucose for fuel. Autophagy may keep the cell in tact but degrade the dysfunctional mitochondria and reuse the raw materials to form new, metabolically flexible mitochondria. This process of mitochondrial recycling is called mitophagy (4).



## MITOCHONDRIAL DYSFUNCTION

RESEARCH SHOWS THE  
ORANGE ONES ARE MORE  
SIGNIFICANTLY INFLUENCED

## Eliminating Viral Infected Cells

Viruses are different than other pathogens in that they are intracellular as opposed to bacteria, yeast and parasites that live in tissues and organ systems of the body. Viruses get inside of cells and impact the metabolism and expression of the cellular genetics.

While a strong immune system helps to turn off viral expression and put them into a dormant state, it doesn't actually get rid of these cells. The cells continue to replicate and continue to pass the viral material to new daughter cells. When the body is under more stress and the immune system is more susceptible, the viral activity can increase and cause wide range of cellular disruption.

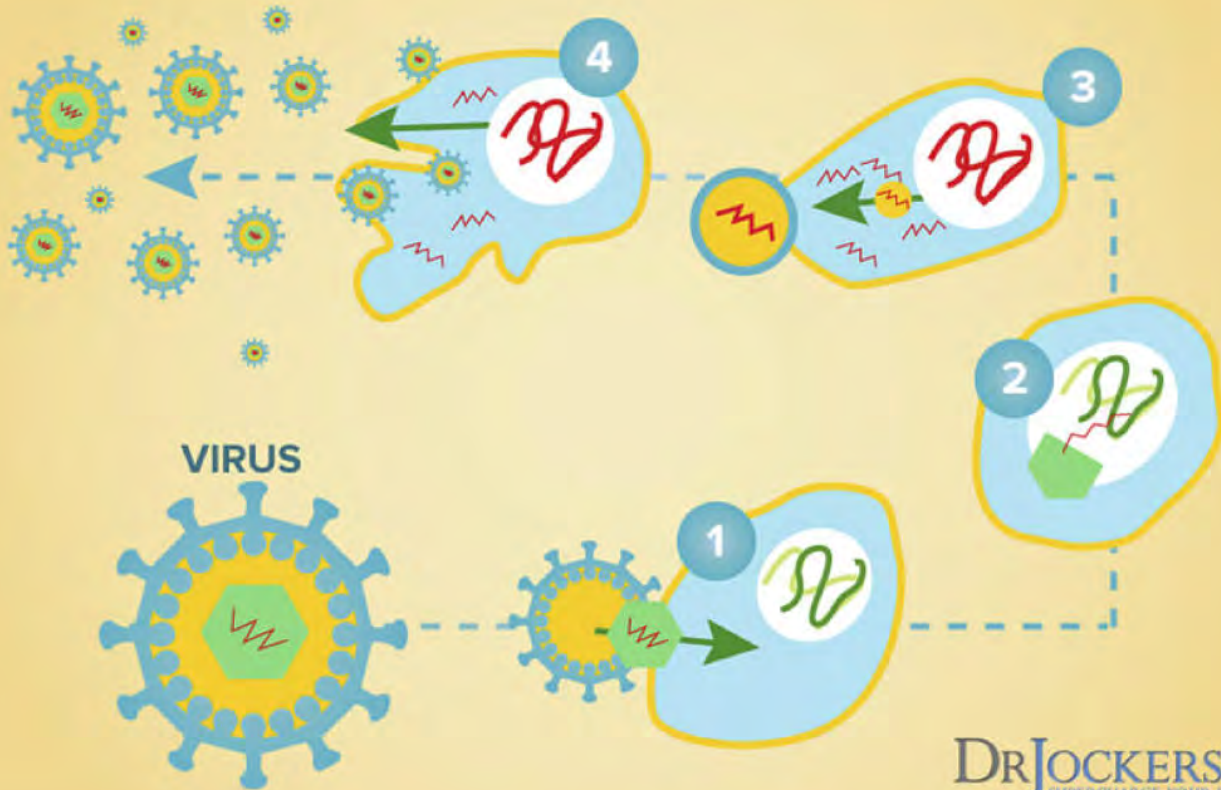
A few examples would be the Varicella-Zoster virus which causes chicken pox in children and triggers Shingles in adults. The individuals who experience this harbor the virus from childhood and experience shingles outbreaks at times as an adult when they are under more stress and unable to adapt effectively.



Autophagy is the way the body naturally eliminates these infected cells and reduces viral activity in the body (5). In fact, when you experience viral challenges, such as getting the flu, you often lose your appetite and even water makes you feel nausea.

This is actually a way the body induces a fast (in some cases a dry fast if you cannot keep water down), stimulates autophagy and dramatically reduces the viral count in order for the body to adapt and get better. Following a fasting lifestyle is a great way to keep your viral infected cells at a low level and help your body maintain its optimal genetic expression.

## HOW A VIRUS WORKS



1 The virus enters the cell body releasing RNA.

2 Virus RNA invades the cell nucleus and takes over.

3 Viral RNA uses the host cell to create new RNA and assemble more viral particles.

4 New viral particles are released, sometimes destroying the cell in the process.

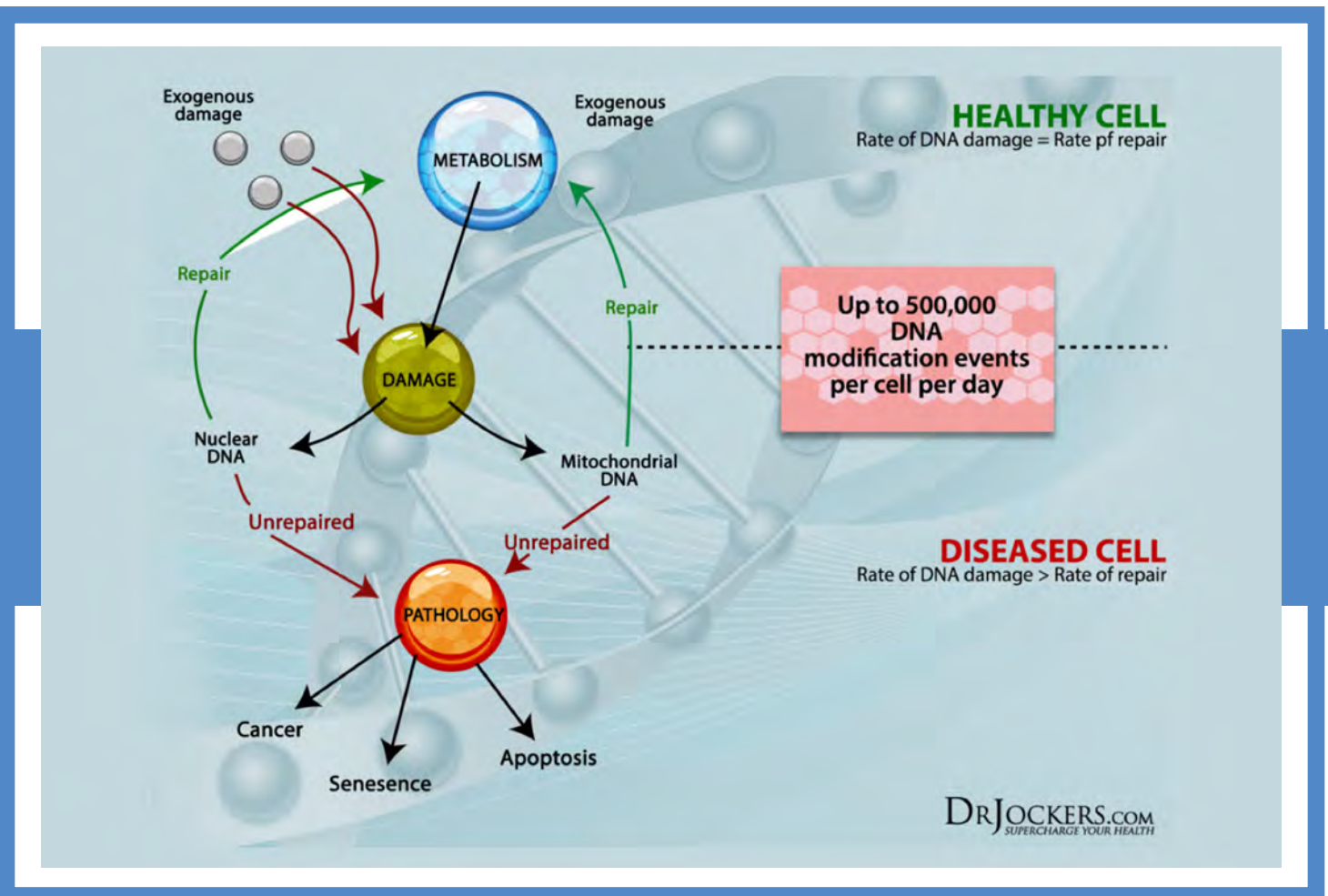
## Reduces Cellular Apoptosis:

Older cells will often undergo a programmed cell death called apoptosis. This process causes a lot of metabolic waste that can be stressful on the body and induce inflammation. Autophagy on the other hand is a very clean and energy efficient process (6).

The more cells that are able to repair themselves before they become permanently damaged the less inflammation and metabolic waste is produced. This recycling process is very clean and smooth for the body and conserves energy for other vital functions and help us feel significantly better in our mind and body.

I think of the cellular apoptosis mechanism as a backup way the body eliminates diseased cells. If we are over-reliant on this back-up mechanism then there are too many things that could go wrong.

As an example, high levels of oxidative stress block the p53 gene that governs cellular apoptosis. When this happens, we can no longer regulate cell division and overtime we develop various cancer (7).





# Autophagy Creates a Stronger and More Stress Resilient Body and Mind

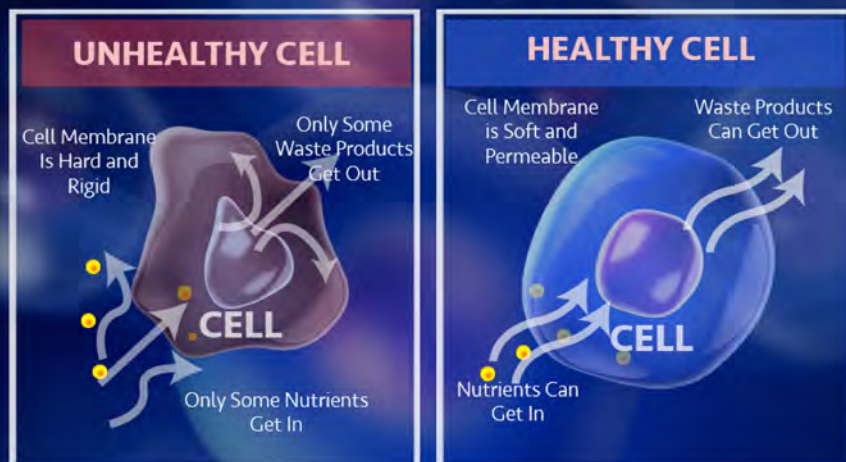
All the above-mentioned benefits of autophagy work together to help us have a stronger and more stress resilient body and mind. For example, autophagy in our muscle cells makes them stronger and more resilient to wear and tear.

Autophagy in our intestinal lining makes us less susceptible to gut inflammation and the formation of leaky gut syndrome. High levels of regular autophagy on our skin makes it more resilient and less likely to develop eczema, acne and signs of aging.

Autophagy in our brain cells helps them function sharper and quicker which gives us better mood, memory and mental processing. It also dramatically reduces our risk of developing dementia and other neurodegenerative conditions (8).

As you can see, doing things to promote autophagy can be one of the most powerful health strategies you apply into your life. Here is how to maximize the balance between autophagy and growth signaling in your body.

## UNHEALTHY VS. HEALTHY CELL



**100 MILLION**  
CELLS DIE PER MINUTE

SKIN CELLS | 28 DAYS  
LIVER CELLS | 500 DAYS  
INTESTINAL CELLS | 3 DAYS  
RED BLOOD CELLS | 120 DAYS  
WHITE BLOOD CELLS | A FEW HOURS

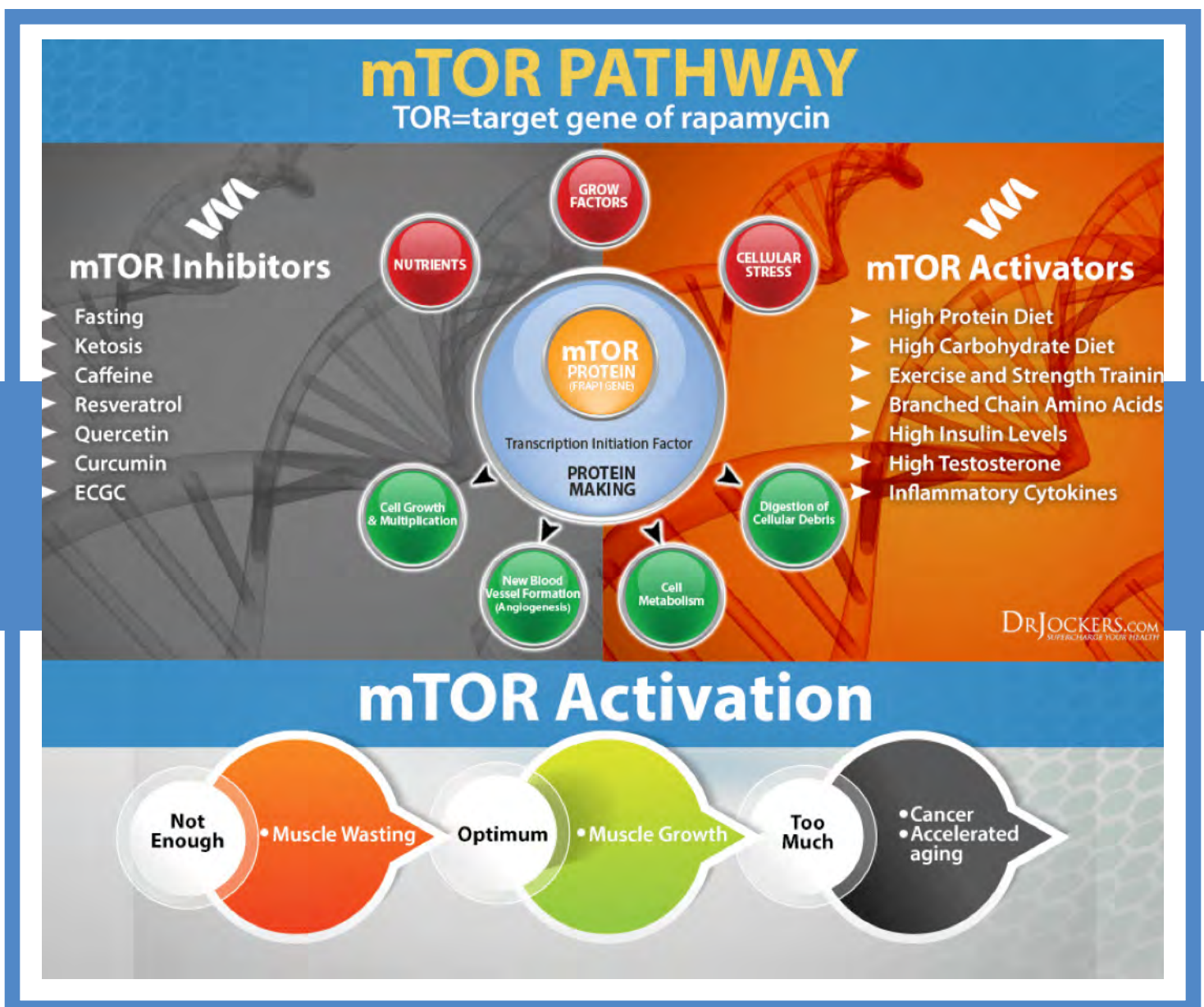
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# AMP-K and mTOR Pathways

In order to activate autophagy, you must suppress insulin and Mammalian Target of Rapamycin (mTOR) and activate the AMP-K pathway in your body. The mTOR pathway is associated with the regulation of growing tissues in the body.

Temporary mTOR elevations are great for building muscle and fat burning, chronically elevated mTOR is associated with an increased risk of chronic disease and [cancer](#).

The AMP-K pathways stand for adenosine monophosphate-activated protein kinase. It is an enzyme that plays a crucial role in cellular energy homeostasis and is important for your metabolism, glucose and lipid transport, lifespan, and overall health.







## Glucose to Ketone Ratio

The Glucose Ketone Index, or the GKI, is a ratio that researcher Dr. Thomas Seyfried has been using in his studies looking at tumors and how they respond to both fasting and the ketogenic diet (9). A healthy nutritional ketosis marker for the GKI is between 1:1 and 4:1. If you are in this zone, you are in nutritional ketosis and your body is either learning how to use ketones for energy or has adapted and is using them as a primary energy source.

However, when it comes to brain tumors and other cancers, Dr Seyfried and his colleagues have found a ratio close to 1:1 to be most effective. The target zone for this is when the glucose numbers are in the 60's and the ketones are roughly 3.0 mmol/L or more. You can get to these levels through the water fast and typically by Day 4-5, most people will be hovering in this range.

The GKI is found by taking the blood glucose level and dividing it by 18. You then take that number and divide it by the blood ketone level. A blood sugar of 64 with ketone level of 3.1 would have a GKI of 1.15

**GKI:  $(64/18) / 3.1 = 1.15$**

According to Dr Seyfried, a GKI of 1:1 is the most effective level for shrinking tumors. This is due to the rampant amount of autophagy that takes place and the lack of insulin and available glucose that tumor cells use to grow and divide. If you are hitting close to a 1:1 GKI than the body is going to work on these destructive cells.

Your blood glucose will typically be at its highest in the morning due to higher cortisol levels but should drop as the day goes on. Stress will cause it to go up higher so do your best to limit the amount of stress you are under.



# What is the Glucose Ketone Index (GKI)

It Analyzes the Relationship Between Blood Glucose and Ketones At Any Time

## HERE IS HOW IT IS CALCULATED:

- 1) Measure Glucose Levels
- 2) Measure Blood Ketone Levels
- 3) Divide Blood Glucose Levels by 18
- 4) Divide That Number by Blood Ketone Levels

$$\frac{(76/18)}{2.2} = 1.9$$

## WHAT IS THE TARGET?

For Nutritional Ketosis Experts Say Between 1:1 and 4:1  
For Chronic Diseases Experts Say as Close to 1:1 as Possible

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## Intermittent and Extended Fasting

Fasting for extended periods of time is by far the most powerful way to stimulate autophagy mechanisms in the body. You will achieve peak levels of autophagy around Day 4 and 5 of a water fast when your glucose-ketone index (GKI) is around 1:1.

Another approach is to do a partial fast for 5 days each month or two. One researched example of a partial fast is the Fasting Mimicking Diet, which has the individual consume between 800-1100 calories for 5 days and has powerful studies behind its impact on autophagy (10).

However, you can also stimulate a healthy level of autophagy through daily intermittent fasting where you restrict meals to an 8 hour or less window each day (11). This would mean you would fast for 16 hours without taking in any calories each day. As an example, you could eat your meals between 10am – 6pm.



# 7 WAYS TO DO DAILY INTERMITTENT FASTING



## The Benefits of Feasting

Although fasting is the greatest stimulator of autophagy, we also need to stimulate the mTOR and insulin pathways in order to build and produce energy on a regular basis. Too much autophagy, as witnessed in individuals who are on a long-term calorie restricted diet leads to muscle wasting, depressed thyroid and sex hormone activity (11).

What is built into our DNA from ancestral times is a feast-famine cycle of eating. Our ancestors ate until they were full when they ate due to a lack of consistent food supply and a lack of refrigeration and other modern food storage strategies.

Food wasn't guaranteed and they would frequently go days with little to nothing to eat. When they did have food available, the idea was to eat as much as you could so you could get your share as the food would spoil quickly.

When we periodically feast on healthy nutrient dense foods, we flood the body with key nutrients it needs and we also stimulate metabolic pathways that help us to burn fat for fuel and have proper lean body tissue development.

The key principle to remember is that when we fast...we fast and when it is time to eat... we feast until we are full and satiated. This balances the body between the physiological mechanisms behind both building and cleansing the cells.

## Benefits of Feast-Famine Cycling

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- Regulates Cell Growth and Cleansing Pathways
- Creates Hormonal Optimization
- Improves Lean Body Tissue Development
- Stimulates Fat Burning
- Balances Inflammation and Immune Activity
- Enhances Mental and Emotional Well-Being

\*\*\*Going through phases of feasting on nutrient dense foods and periods of intermittent and extended fasting improves our metabolic flexibility and energy efficiency and makes us incredibly strong and resilient human beings.

### TIMES OF FEASTING

Growth, Building and Reproduction is Favored over Cell Cleansing and Healing

### TIMES OF FASTING

Cell Cleansing and Healing is Favored over Growth, Building and Reproduction



## 8 Ways to Enhance Autophagy in Your Body

Fasting is by far the most powerful way to enhance autophagy in the body. However, there are a number of other strategies that help support the same genetic pathways that ramp up autophagy mechanisms.

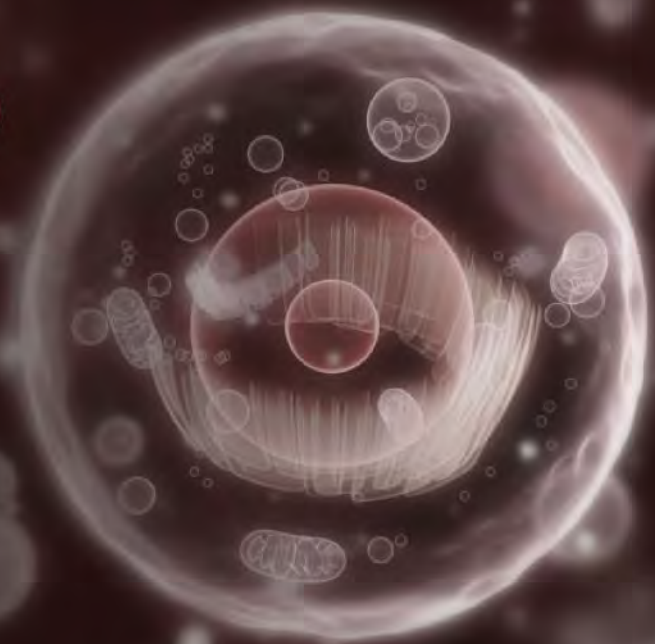
In this section, I will briefly explain how these strategies will support your body's ability to stabilize blood sugar, burn fat and improve autophagy and cellular repair.



# 8 Ways to Optimize Autophagy

- 1 Follow a Cyclical Ketogenic Diet
- 2 Drink Green Tea or Black Coffee
- 3 Use Anti-Inflammatory Herbs
- 4 Drink Apple Cider Vinegar
- 5 High-intensity Interval Training (HIIT)
- 6 Prioritize Good Sleep
- 7 Use Heat and Cold Strategically
- 8 Consume Good Quality Protein

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## Follow a Ketogenic Diet

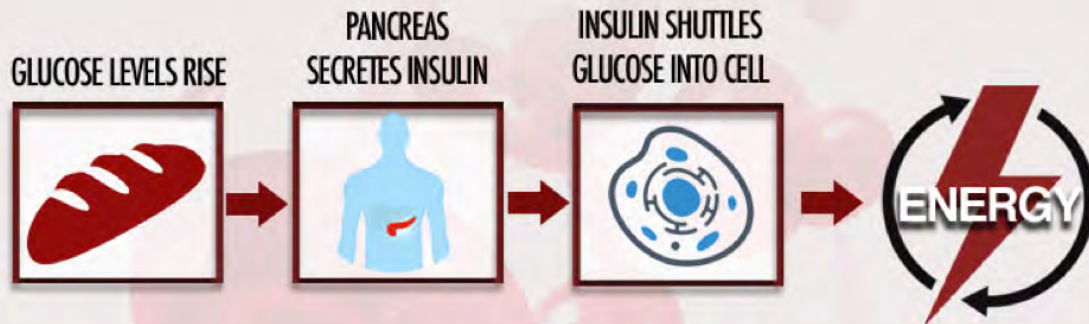
Most people in society are burning sugar in the form of glucose as their primary energy source. When we are in this sugar burning mode, we end up with large blood sugar fluctuations and higher insulin levels. This physiological process inhibits autophagy. A ketogenic diet is a high fat, low carb and moderate protein nutrition plan. This pattern of eating lowers blood sugar and insulin levels and causes the body to adapt to burning dietary fat and its own body fat for fuel.

**Ketones** are byproducts of fatty acids that are more easily used to produce cellular energy and they can cross through the blood brain barrier to fuel the brain. Ketones are a preferred fuel for the body because they produce significantly more energy per molecule than glucose and they produce a lot less metabolic waste. They are a clean fuel source as opposed to the dirty fuel produced by burning sugar.

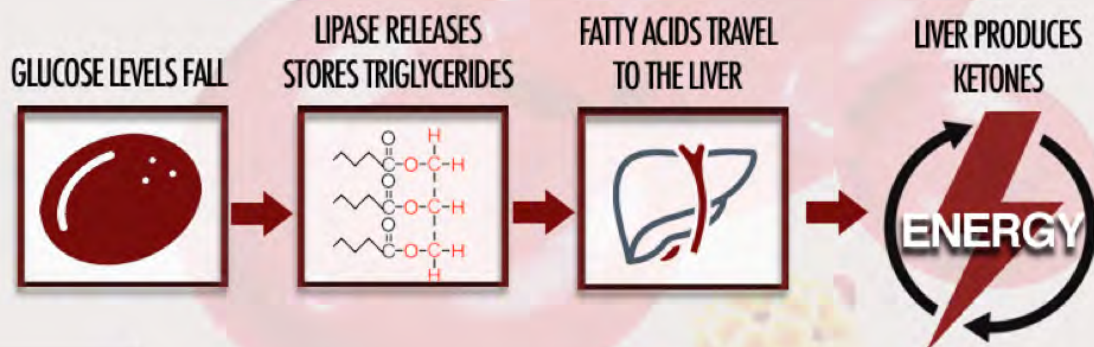
A ketogenic diet mimics fasting and you get some of the same benefits of fasting while still eating food. By blunting insulin, the ketogenic diet primes autophagy pathways and when we apply intermittent fasting, we get into a state of autophagy much quicker than if we were not keto adapted.

# HOW DOES KETOSIS WORK?

## TRADITIONAL DIET: HIGHER CARB



## KETO DIET: HIGHER FAT



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## Drink Green Tea or Black Coffee

Green tea can help overcome a common weight loss roadblock: slow metabolism. For a lot of people, once they've lost a certain amount of weight, their metabolism slows down. With a slow metabolism, calories you consume are used more slowly and are more likely to be stored... and the rest of the fat you'd like to lose stays right where it is. The polyphenols in green tea, also known as catechins, counteract that slow metabolism by



boosting your energy expenditure (12). Drinking enough green tea provides catechins needed to use more energy.

Green tea catechins also help to regulate ghrelin, otherwise known as the hunger hormone (13). If you struggle with fasting because of hunger pangs, green tea can reduce those pangs and help make your fast more successful.

In fact, a number of different plant polyphenols and nutrients have the power to make fasting a more pleasant experience. Mint and licorice root are known for their ability to reduce appetite. Ginger has anti-inflammatory benefits and can soothe your stomach, while citrus peel helps digestion and can even boost autophagy.

In addition, if you are a coffee drinker, then I have good news. Black coffee has been shown to help induce autophagy (14). My experience is that only about 66% of the population does well with coffee or caffeine in general and the other 3rd struggles with it. The way you know you are getting a positive response is if you feel good after the next few hours after drinking it on a fast. If you feel anxious, irritated, or have an increase in hunger and cravings than it is a sign you are having a poor response.

**TEA**  
HEALTH BENEFITS

**Sencha**  
Prebiotic; regulates ghrelin (hunger hormone) supports thermogenesis (rate at which you burn calories) and healthy metabolism

**English Breakfast**  
Prebiotic; provides sustained energy; supports healthy blood sugar

**Sacred Lily Oolong**  
Supports malabsorption of fats; protects against free radical damage

**Mint Green**  
Supports healthy blood sugar; aids with sugar cravings and appetite suppression

**Earl Grey**  
Supports autophagy; prebiotic; excellent morning energy boost without jitters

**Jasmine**  
Supports mental focus; provides calm energy; supports immune system

**White Peony**  
Supports immune system; protects against free radicals; supports weight management

**Hibiscus Mint (Hibiscus Beauty Elixir)**  
Supports healthy skin and kidneys; supports anti-inflammatory response

**Ginger Citrus (Ginger Digestion Elixir)**  
Enhances digestion; soothes stomach discomfort

**Vanilla Rooibos (Rooibos Immunity Elixir)**  
Protects against free radical damage; alleviates allergies; supports healthy skin and hair

**Sun Goddess Matcha**  
Supports deep mental focus and awareness; calming; promotes thermogenesis; supports detoxification

**Ginger Green Fasting Tea**  
Enhances digestion; suppresses appetite

**Matcha Green Fasting Tea**  
Boosts thermogenesis (rate at which you burn calories); suppresses appetite

Courtesy of PiqueTea.com

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# Use Anti-Inflammatory Herbs

Just like green tea, many herbs contain unique plant compounds called polyphenols. These polyphenols act to suppress the mTOR pathway and activate the AMPk pathway to induce autophagy (15, 16).

This isn't as strong a stimulus towards autophagy as fasting but it can be used in conjunction with fasting and the other strategies in this article to optimize the autophagy mechanisms in your body.

Some of the best herbs for this include quercetin (red onions and elderberries), carnosic acid (oregano, sage and rosemary) citrus bergamot (Earl Gray tea), ECGC (green tea and dark chocolate), 6-shagaol (ginger), curcumin (turmeric) and resveratrol (blueberries, grapes and red wine) among others.

Getting these compounds by consuming a number of herbs in our diet and through supplementation can be very helpful. In addition, I am a huge fan of drinking herbal teas made from many of these compounds.

## TOP FOOD AND HERBAL COMPOUNDS FOR AUTOPHAGY



**Quercetin**  
Red Onions, Cranberries  
and Elderberries



**6-Shagaol**  
Ginger



**Curcumin**  
Turmeric



**Resveratrol**  
Blueberries, Grapes  
and Red Wine



**ECGC**  
Green Tea, Oolong tea  
and Dark Chocolate



**Citrus Bergamot**  
Bergamot orange,  
Earl Gray tea



**Carnosic Acid**  
Oregano, Sage  
and Rosemary

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## Drink Apple Cider Vinegar

You can also choose to drink an apple cider vinegar (ACV) tonic during your fasting window. ACV contains a compound called acetic acid, which helps boost your metabolism and burn fat rather than store it (17).

Apple cider vinegar is also shown to be useful in making you feel fuller for longer and reducing your appetite. When paired with starchy foods, ACV can slow digestion. While digestion is happening, you remain feeling full. While your body is digesting that food, your insulin levels should remain stable, meaning you won't feel tempted to reach for a sugary snack.

We recommend diluting 1-2 tbsp of ACV in water and drinking it before meals.





## Do High-Intensity Interval Training (HIIT) and Resistance Training

High intensity interval training and resistance training while fasting can ramp up autophagy, stimulate fat burning and improve mood and mental focus. Fasting and exercise both create an environment of stress for the body. That might not sound very appealing in theory, but intermittent doses of that stress can help with weight loss and improve mental clarity.

Exercise releases fat loss hormones called epinephrine (adrenaline), norepinephrine and endorphins (18) These hormones also help your ability to focus, clear brain fog, and improve mood. Your brain processes things more quickly and your hearing and vision even become more precise. All of these things can help concentration.

Exercise in a fasted state of 12-16 or more hours also helps increase the autophagy signaling mechanisms as the body senses it needs more nutrients to produce energy. As muscle cells are being damaged during the exercise, the body goes to work breaking the cellular material down and rebuilding it (19).

High intensity exercise and resistance training help stimulate human growth hormone (HGH) which creates an environment that favors fat burning, autophagy and muscle tissue repair and preservation. The boost in HGH is higher when the individual is in a fasted state.

I recommend working out in the morning or mid-day on a 12-16+ hour overnight fast. You should be well hydrated and you can take in a pinch of salts for electrolytes and consume some green tea or organic black coffee if you like.

If you are new to fasting, begin with exercise on a 12 hour fast and have a good quality protein shake after your workout. If you have had a lot of success with fasting you can get a great workout after 16-24+ hours of fasting and then replenish with a good meal after the workout.





## High Intensity Interval and Resistance Training Benefits

- Improves Muscle Tissue Autophagy and Hypertrophy
- Stimulates Mitophagy and Mitochondrial Biogenesis
- Improves Hormonal Mechanisms for Fat Burning
- Stimulates Human Growth Hormone
- Raises up Endorphins for Improved Mood
- Improves Circulation and Lymphatic Drainage
- Improves Respiration and Perspiration to Release Toxins in the Body
- Enhances Metabolic Flexibility and Energy Efficiency
- Improves Physical and Mental Stress Resiliency

*HIIT and Resistance Training Help the Body Get Rid of Dysfunctional Muscle Cells and Build New, Healthier Muscle Cells that have More Energy Producing Mitochondria that Are Metabolically Flexible so They Can Burn Fat and Glucose for Fuel*

## Prioritize Good Sleep for Autophagy

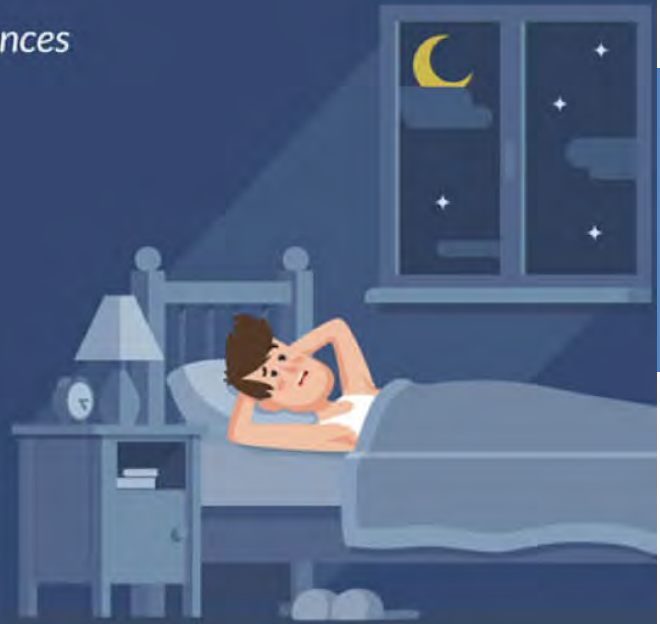
We all know how important sleep is and so it should be no wonder that our sleep cycle and circadian rhythm is intimately tied into autophagy (20). Individuals with circadian rhythm disorders due to poor sleeping habits, insomnia and long-term night shift work have an increased risk of early-onset chronic disease development.

One of the reasons for this is that autophagy is in part regulated by light & dark cycles and deep sleep favors an environment for optimal autophagy mechanisms. You will need to prioritize good sleeping habits in order to help you optimize autophagy with your intermittent and extended fasting regimen.

# 10 Major Causes of Poor Sleep

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- *Poor Sleep Schedule*
- *Bad Nutrition and Blood Sugar Imbalances*
- *Nutrient Deficiencies*
- *LED Light Exposure*
- *Stress*
- *Chronic Pain*
- *Sleep Apnea*
- *Hiatal Hernia and Heart Palpitations*
- *Overactive Thyroid Activity*
- *Gut Infections*



## Use Heat and Cold Strategically for Autophagy

Short periods of intense heat and cold exposure have also been shown to promote autophagy mechanisms (21). Rapid temperature changes are a major stressor on our body and we have to adapt quickly to get back to balance and homeostasis.

This is one reason why stressed out people often get sick with colds, infections and the flu when the temperature drops outside. Their body was already stressed and immune susceptible and when the weather changed quickly it overwhelmed their body and made it hospitable to environmental pathogens.

Rapid temperature changes can also be used strategically as a hormetic stressor to boost our internal resistance to stress. Autophagy-related genes are required for the thermoresistance and longevity of animals exposed to hormetic heat shock or cold temperatures.



This adaptation pushes autophagy and gives us a much greater ability to adapt to temperature changes and other stressors we encounter. In essence, strategic dosing of hot and cold temperatures makes us stronger and more resilient human beings.

Some ways to take advantage of this are to exercise outside in the heat of the summer or use a steam sauna or what I do personally, an infrared sauna on a regular basis. For cold adaptation, I like to finish my daily shower with 1 minute at the coldest temperature possible.

I pump my arms and legs in order to activate my skeletal muscle when this is going on and it gives a great boost to circulation and feel good compounds such as serotonin, dopamine and endorphins.

**COLD SHOWER vs HOT SHOWER**

**COLD SHOWER**

- Helps you wake up & increases awareness
- Relieves depression & improves mood
- Hydrates your skin & hair
- Gives extra dose of energy
- Tightens your skin
- Improves fertility
- Improves concentration
- Accelerates metabolism
- Improves immunity & blood circulation
- Speeds up muscle soreness & recovery after workout

**HOT SHOWER**

- Great for a good night's sleep
- Opens up the pores & cleans skin
- Relieves tension
- Relieves headache
- Removes toxic wastes from skin
- Relieves cold & nasal congestion
- Relieves muscle cramps
- Fights migraine
- Reduces anxiety
- Relaxes your body & muscles

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The synergistic power is in alternating your temperature in the shower between hot and cold to force your body to adapt to the new temperature regulation.



## Temporary Caloric Restriction & Protein Restriction

While protein is essential for muscle building, bone density, fat burning, brain and heart health, too much protein in your diet can increase insulin, block ketone production, and activate the mTOR pathway. Research has linked caloric restriction and protein restriction to the activation of autophagy (22, 23).

Adding protein to your diet (during your eating window, of course), is very important for balancing out the benefits of autophagy with proper building mechanisms so your body is strong and healthy.

Driving up autophagy for a prolonged period of time can cause many issues I discussed already in the section on feasting. Protein is vitally important to the mTOR pathway to build up strong cells. The mTOR building and the AMP-K autophagy pathways need to be in balance for most individuals and applying intermittent fasting along with periods of feasting and good quality protein intake creates this appropriate balance.

In certain cases, such as fast-growing tumors, we may want to restrict protein all together for an extended period to stop the mTOR pathway but this is a rare exception. Autophagy naturally rids your body of damaged, old, or excess cells first (24). To ensure that you maintain muscle mass, it's important that you eat enough lean protein.

Eating protein helps those muscle cells stay healthy. It feeds muscle cells so they're able to repair any microscopic damage that's made during exercise. Each time they're repaired, they get a little bigger. As long as they're being repaired, your body won't see them as cells that it needs to get rid of, and will opt for other cells, like fat, instead.





## GOALS THAT DETERMINE PROTEIN INTAKE

### Weight Loss:

If you are looking to lose weight and you are staying active than you want to shoot for a protein range from 1.0-1.2 grams of protein per kg of body weight

Ex: 160 lb individual -  $160/2.2 = 72.7\text{kg}$  (1.0-1.2 g/kg = 73-87 grams of protein daily)

### Muscle Building:

If you are looking to build lean body tissue and are combining resistance training than you should aim for 1.2- 2.0 grams of protein per kg of body weight.

Ex: 160 lb individual -  $160/2.2 = 72.7\text{kg}$  (1.2-2.0 g/kg = 87-145 grams of protein daily)

I will typically recommend around 1.2 grams per kg on non-training days and in the 1.4-1.6 g/kg range on training days.

### Extreme Athletes:

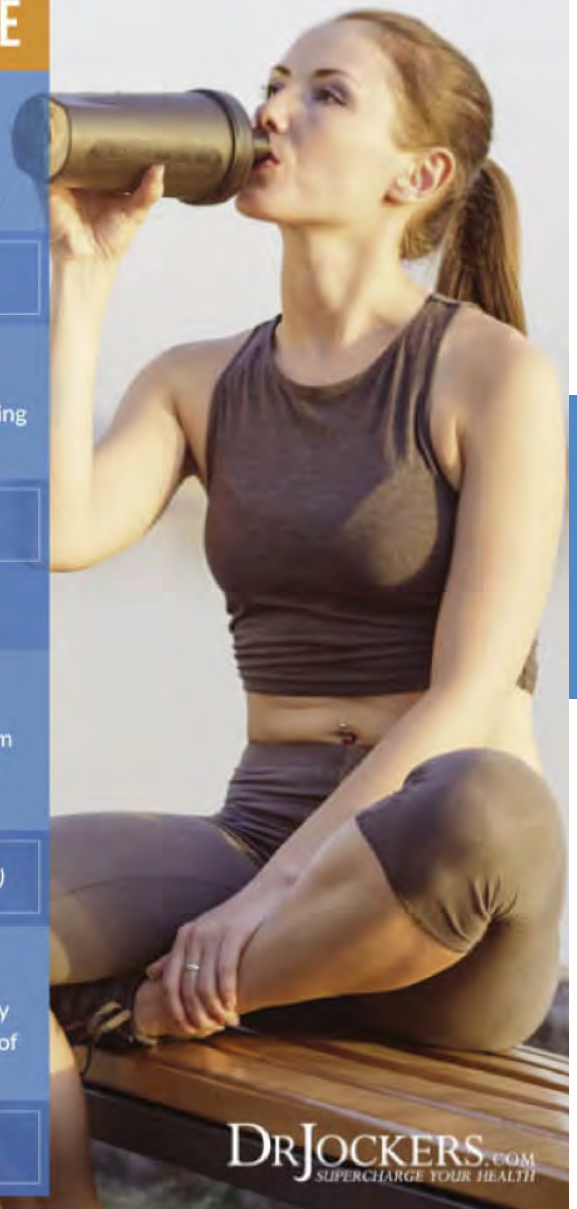
If you are a high level extreme athlete playing football, basketball or other team or individual sports you are going to want to be in the 1.4-2.0 g/kg range and possibly higher depending upon your overall activity.

Ex: 160 lb individual -  $160/2.2 = 72.7\text{kg}$  (1.4-2.0 g/kg = 100-145 grams of protein daily)

### Sedentary Individuals:

If you are a sedentary individual that wants the benefits of ketosis and possibly weight loss than I recommend staying in the 0.8 - 1.0 grams of protein per kg of body weight.

Ex: 160 lb individual -  $160/2.2 = 72.7\text{kg}$  (1.0-1.2 g/kg = 58-73 grams of protein daily)



## Best Sources of Protein

Use the chart below to determine your daily protein range based around the specific goals you have. Our bodies can handle periods of extended fasting with protein or any calories, but I wouldn't recommend any more than one extended fast of 5 days or more per month unless you are under strict medical supervision.

For protein sources, it is best to choose organic, pasture-raised meats, eggs, dairy and wild-caught fish. You can also use plant-based protein sources such as nuts, seeds and legumes.

I am also a huge fan of adding a good quality bone broth or collagen protein powder into your diet to get more connective tissue amino acids into your body. You can also use a vegan based protein source such as pea, hemp, chia or rice protein to support your protein needs.

## TOP 8 BENEFITS OF PROTEIN FOODS



Stabilizes Blood Sugar Levels



Improves Fat Burning



Stimulates Muscle Building



Improves Learning and Memory



Promotes a Positive Mood



Important For Heart Health



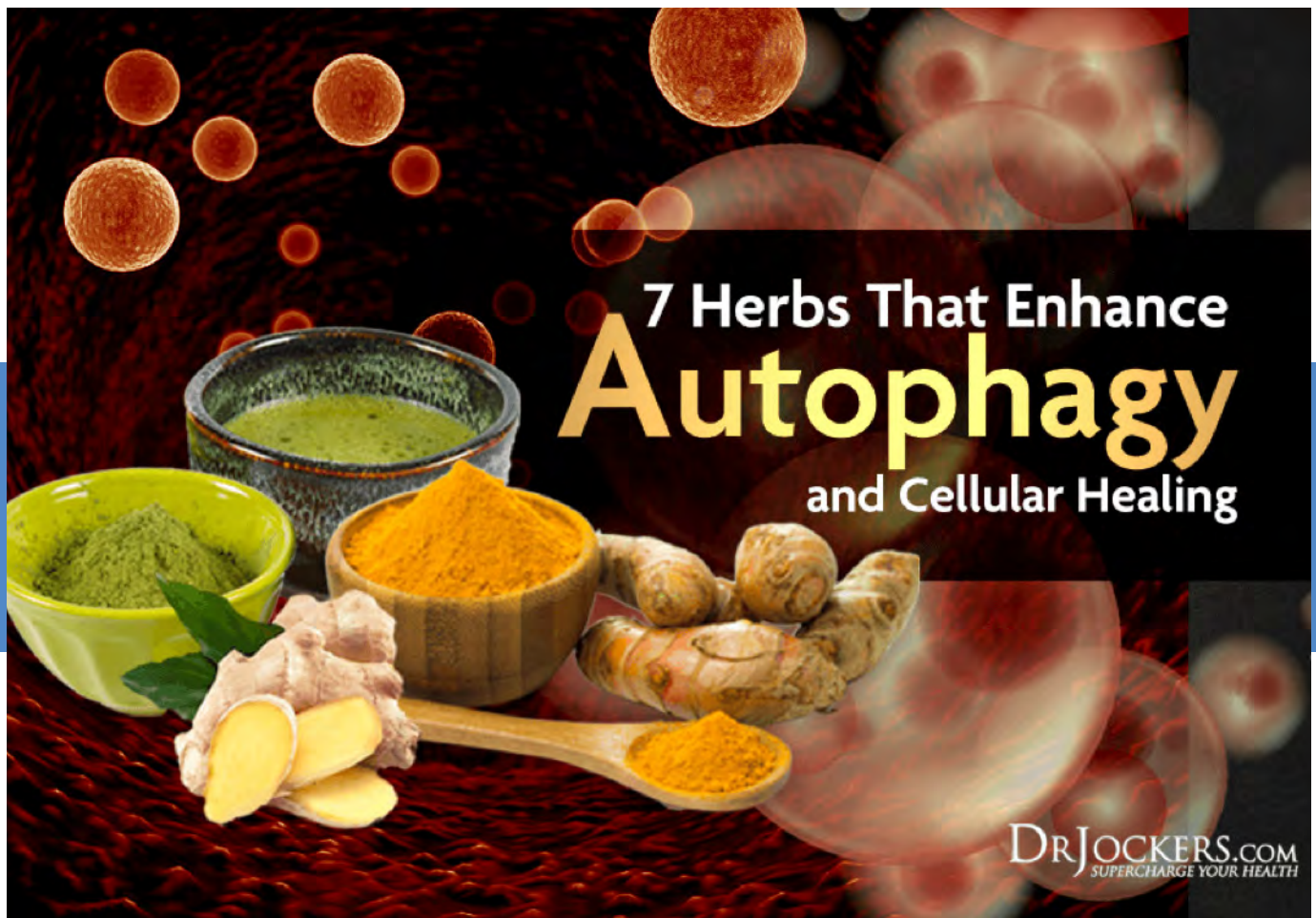
Slows the Aging Process & Promotes Longevity



Improves Bone Density

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## Top 7 Herbs That Enhance Autophagy and Cellular Healing

One way to enhance autophagy and cellular healing is by using specific herbs. Many herbs contain polyphenols that help to suppress the mTOR pathway and activate the AMPk pathway to introduce autophagy.

Used in conjunction with fasting and other strategies, anti-inflammatory [herbs](#) are a fantastic way to optimize and enhance autophagy mechanisms in your body (24, 25, 26). Let's look at the top 7 herbs that enhance autophagy and cellular healing.

## TOP FOOD AND HERBAL COMPOUNDS FOR AUTOPHAGY



### Quercetin

Red Onions, Cranberries  
and Elderberries



### 6-Shagaol

Ginger



### Curcumin

Turmeric



### Resveratrol

Blueberries, Grapes  
and Red Wine



### ECGC

Green Tea, Oolong tea  
and Dark Chocolate



### Citrus Bergamot

Bergamot orange,  
Earl Gray tea



### Carnosic Acid

Oregano, Sage  
and Rosemary

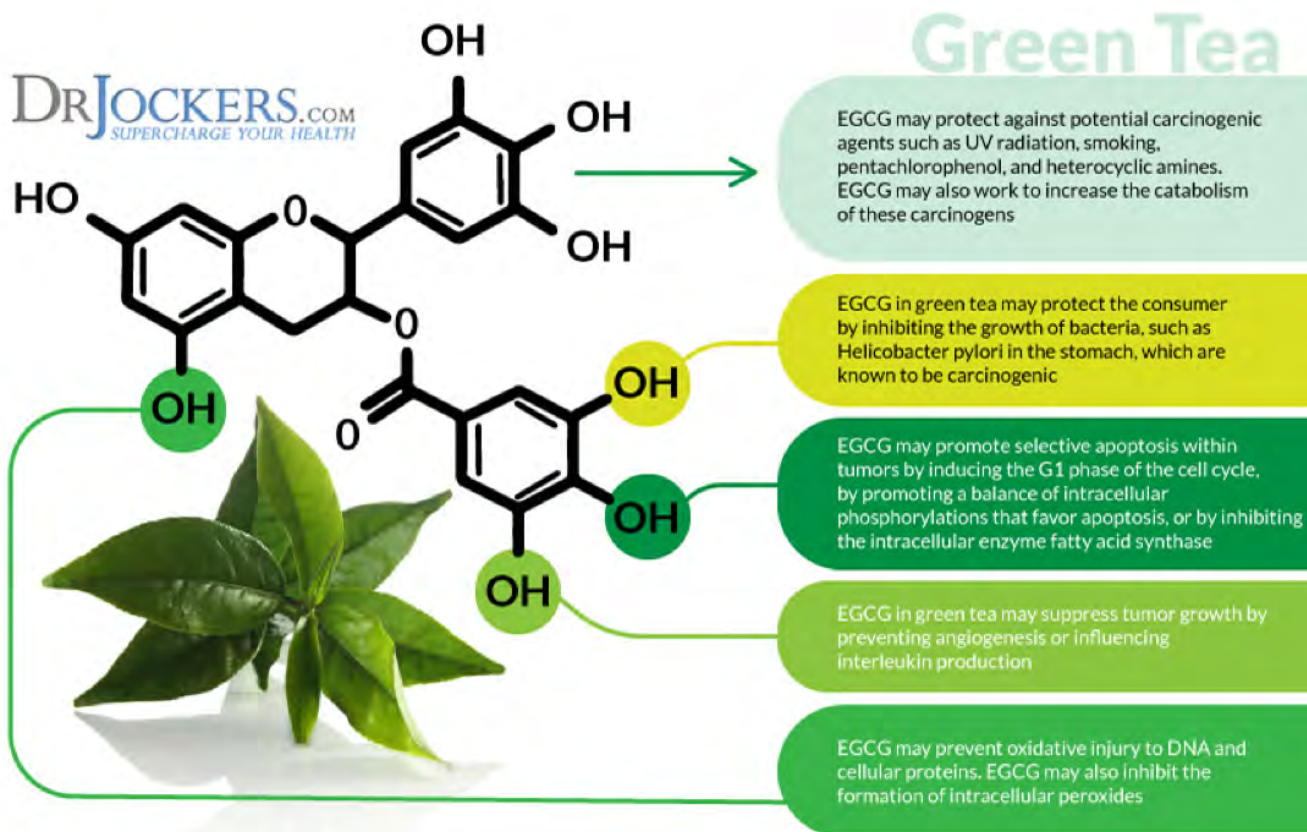
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## Matcha Green Tea

Matcha green tea is an increasingly popular tea. Though it comes from the same plant, *Camellia sinensis*, as [green tea](#), it is grown differently. Farmers cover the tea plant for 20 to 30 days before harvesting. This technique increases chlorophyll production and amino acid content. After harvesting, they remove the stems and veins to create a fine powder from the ground up leaves resulting in a tea that's higher in antioxidants than green tea.

Matcha green tea is rich in the polyphenol ECGC and has a number of health benefits. One of its benefits is enhancing autophagy by mimicking the effects of calorie restriction. Some even refer to matcha as the autophagy-tea. Other benefits include boosting brain function, supporting your liver, protecting your heart, and helping weight loss (27).





## Use Ginger To Enhance Autophagy

Ginger is one of the most potent anti-inflammatory herbs out there. It belongs to the rhizome family, which means that its stem grows horizontally underground forming roots downwards and stems and leaves above ground.

It has been used for over 5,000 years in China and India as a natural remedy. Since the Roman Empire, it has also been popular in Europe and in the past several hundred years around the world, including the United States. It can be used in dishes, teas, and juices, and as a supplement.

Ginger has over one hundred chemical compounds. Gingerol is its most powerful active compound with a variety of powerful health benefits. Ginger may enhance autophagy, decrease inflammation, and lower [pain](#) levels. It has been shown to reduce inflammation and pain related to exercise, osteoarthritis, intestinal issues, metabolic syndrome, and obesity (28, 29, 30, 31, 32).

# Lemon Ginger Tea Recipe

**3 inch piece of ginger**

**2 cups of water**

**1/4 fresh lemon**

*Optional: 3-4 drops of lemon drop stevia*

**Step #1:** Peel the ginger and slice thinly

**Step #2:** Pour into pot and boil the ginger for 10-15 minutes w/lid on.

**Step #3:** Turn off heat and remove lid and let cool down

**Step #4:** Once it is warm but drinkable, put in a mug and squeeze lemon and add lemon drop stevia if you want to make it sweet.

**Note:** The larger the piece of ginger, the stronger the tea and the longer you will need to boil. Boiling for about 10-15 minutes will cause you to lose about 1/2 the water due to evaporation. So if you do a 6 inch piece of ginger root, you will need 3-4 cups of water and 30 mins or so to boil.

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## Turmeric

Just like ginger, turmeric is an anti-inflammatory herb that belongs to the rhizome family. It is a warming spice that provides flavor and color to various foods, condiments, and teas. It has been used for thousands of years in traditional Ayurvedic, Indian, and Chinese medicine, and more recently as an anti-inflammatory supplement around the world (33).

Turmeric is one of the most researched spices. The US National Center for Biotechnology alone has over 6,000 studies on its benefits. It is a powerful anti-inflammatory and antioxidant herb with a potent active compound, curcumin.

Turmeric may enhance autophagy, decrease inflammation, and lower pain levels. Research has shown that turmeric may benefit inflammation related to ulcerative colitis, diabetes, osteoarthritis, and lupus (34, 35, 36, 37, 38, 39).



# INCREDIBLE HEALTH BENEFITS OF CURCUMIN

Curcumin, the primary component of the spice Turmeric, is not only an important culinary ingredient but a medical one as well.

## BOOSTS DETOXIFICATION



Curcumin optimizes function of the liver, the body's primary organ of detoxification.

## SUPPORTS CARDIOVASCULAR FUNCTION



Curcumin supports heart health by promoting a healthy inflammatory response.

## PROMOTES HEALTHY MOOD BALANCE



Curcumin has been shown to be an extremely effective natural mood enhancer.

## SUPPORTS NATURAL WEIGHT LOSS



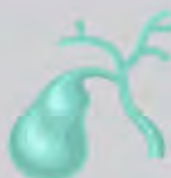
Curcumin can enhance weight loss when combined with healthy diet and exercise.

## SUPPORTS JOINT & MUSCLE HEALTH



Curcumin promotes a healthy inflammatory response and eases aches and pains.

## FIGHTS BODY-WIDE INFLAMMATION



Curcumin has been proven to significantly lower levels of inflammatory markers.

## PROMOTES YOUTHFUL RADIANT SKIN



Curcumin promotes soft, smooth, glowing skin and fights fine lines and wrinkles.

## BOOSTS COGNITIVE FUNCTION



Curcumin protects brain cells by binding to and dissolving abnormal proteins.

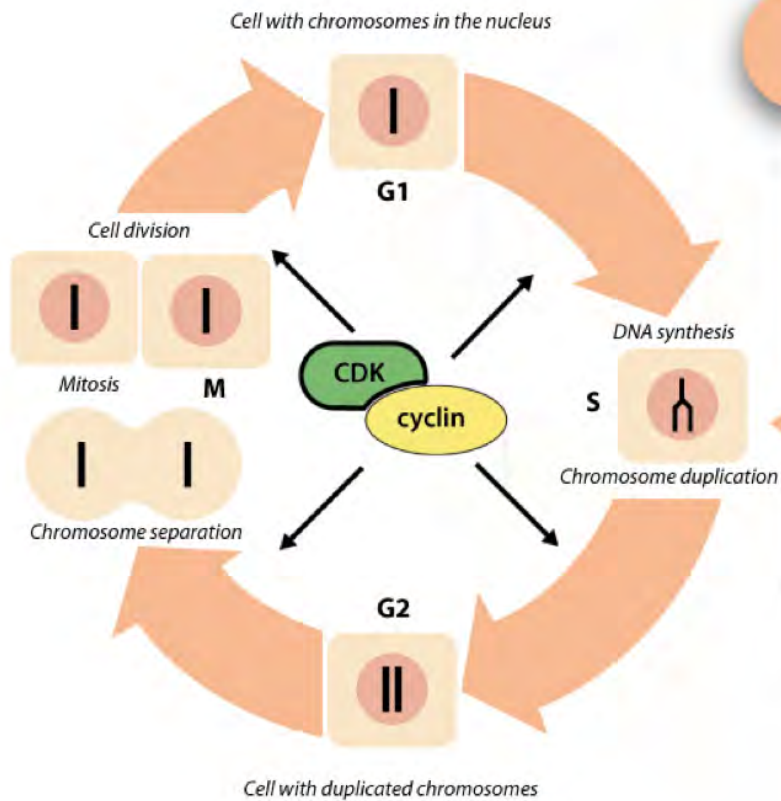
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## Use Resveratrol To Enhance Autophagy

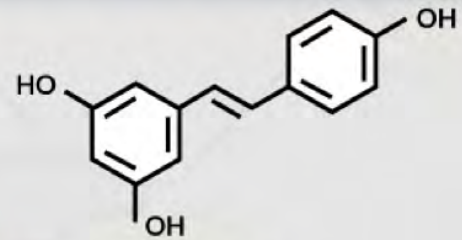
Resveratrol is a powerful plant compound that can be found in red wine, grapes, berries, and peanuts. It is mainly concentrated in the skins and seeds of grapes and berries, which explains that the fermented grapes in red wine are particularly high in [resveratrol](#).

Resveratrol acts as an antioxidant with countless health benefits for your health. Research has shown that by directly inhibiting mTOR through ATP competition, resveratrol may enhance autophagy. It may also be beneficial for brain health, insulin sensitivity, blood pressure, and joint pain (40, 41).





## The Cell Cycle



### Resveratrol

Modest dose of resveratrol slows this phase of the cell cycle, providing longer time for DNA repair.

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## Resveratrol Power Clinical Benefits

-  Supports Optimal Immune Function
-  Improves Mitochondrial Health
-  Supports Skin Health
-  Improves Circulation
-  Reduces Oxidative Stress

## Citrus Bergamont

Citrus bergamot is a unique orange-sized fruit. It's yellow-green and bitter. It has been used as an aromatic essential oil for a long time, and it's an ingredient of Earl Grey tea, traditional colognes, and other things.

Citrus bergamot is rich in antioxidant flavonoids that offer fantastic benefits for your health, heart health, and cholesterol. It may enhance autophagy, especially skin autophagy. As aromatherapy, it may benefit pain, anxiety, nausea, and vomiting (42, 43).

## Oregano, Sage, and Rosemary

Oregano, sage, and rosemary are three fragrant, delicious, anti-inflammatory herbs native to the Mediterranean. They are popular all over the world. They belong to the same herb-family as thyme, basil, and lavender.

Oregano, sage, and rosemary are not only popular in the kitchen but also possess potent anti-inflammatory and antioxidant compounds that may enhance autophagy. No wonder they have been used as natural remedies for centuries. Research has shown their potent anti-inflammatory properties as well. Rosemary, for example, may reduce pain and inflammation in those with rheumatoid arthritis (44, 45).

### ROSEMARY

Rosemary enhances the neurotransmitter acetylcholine which improves memory and cognition.

Rosemary is also a carminative herb that stimulates digestive juice production and enhances overall digestive health.

### ADDITIONAL BENEFITS:

- Improves Blood and Lymphatic Circulation
- Reduces Headaches and Migraines
- Freshens Breath
- Reduces Stress and Anxiety
- Uplifts our Mood
- Regulates Bowel Activity

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## Quercetin To Enhance Autophagy

Bioflavonoids, or flavonoids, are a group of pigments that may help to protect you against various diseases. They possess anti-inflammatory, antioxidant, anti-viral, anti-allergic, and anti-carcinogenic properties, and may enhance autophagy.

While there are over 4000 known bioflavonoids, quercetin is one of my favorites. Quercetin can be found in onions, leafy greens, tomatoes, broccoli, and berries. It may enhance autophagy, fight inflammation, improve immunity, and fight free radical damage (46).



### **BioFlavonoids**

are unique compounds that help give color and antioxidant protection to fruits and vegetables. Certain bioflavonoids are well studied for their health benefits.

Quercetin and Rutin are 2 of these bioflavonoids and research shows when taken in clinical dosages they synergize to offer the following benefits

- Down Regulate the Histamine Response
- Support a Healthy Inflammatory Cycle
- Improve Circulation and Tissue Oxygenation
- Protect the Endothelial Lining of Blood Vessels
- Reduce Allergy and Asthmatic Symptoms
- Help to Reduce Pain and Improve Tissue Healing

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## Use Inflam Defense™ To Enhance Autophagy

[Inflam Defense™](#) is one of my favorite supplements to enhance autophagy and cellular healing. It uses the powerful combination of anti-inflammatory herbs, such as turmeric, boswellia, ginger, and rosemary extracts, as well as nutrients from quercetin, rutin, and proteolytic enzymes.

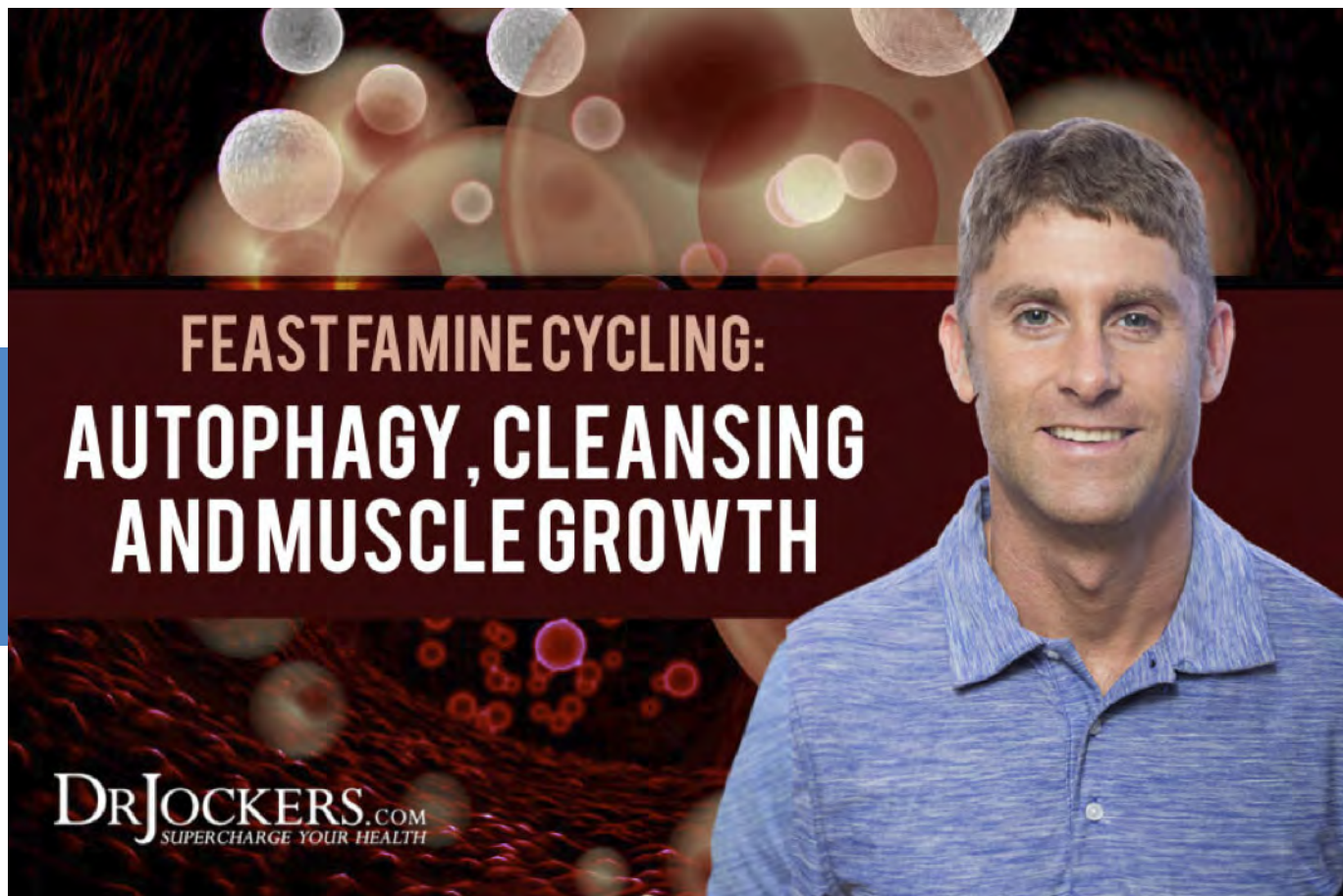
Inflam Defense helps to enhance autophagy, support your immune system, protect you against oxidative stress, support healthy circulation and circular function, and boost your health with antioxidants.

If you are looking to enhance autophagy, keep your inflammation and pain levels under control, boost your immune system, and support your overall health, I recommend [Inflam Defense™](#). Take one capsule twice a day between meals. For advanced protection, take two or more capsules between meals or as directed by your healthcare practitioner.

### INFLAM DEFENSE CLINICAL BENEFITS



- ✓ Supports Healthy Inflammatory Response
- ✓ Helps Protect Against Oxidative Stress
- ✓ Powerful Source of Anti-Oxidant Compounds
- ✓ Supports Healthy Circulation and Lymphatic Function



## Feast Famine Cycling: Autophagy, Cleansing and Muscle Growth

Feast famine cycling is an eating concept derived from our ancestral roots. More and more people are interested in fasting for its health benefits. However, many forget about the importance of feasting.

While fasting certainly has a number of health benefits, including fat burning, reduced inflammation, and improved energy levels, prolonged calorie restriction also has a downside to it, including potential hormonal imbalance. This is why feasting is so important.

Through feasting, you can nourish your body with nutrient-dense foods. Feast-famine cycling can help to regulate cell-growth and cleansing pathways, create hormonal optimization, boost lean body tissue development, better inflammation and immune activity, and enhance mental health and emotional well-being.



In this article, you will learn about the benefits of fasting, the importance of feasting, feast-famine cycling, and hormone balancing. You will also learn how to implement feast-famine cycling to receive full benefits from your fasting lifestyle.

## Benefits of Feast-Famine Cycling

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- Regulates Cell Growth and Cleansing Pathways
- Creates Hormonal Optimization
- Improves Lean Body Tissue Development
- Stimulates Fat Burning
- Balances Inflammation and Immune Activity
- Enhances Mental and Emotional Well-Being

\*\*\*Going through phases of feasting on nutrient dense foods and periods of intermittent and extended fasting improves our metabolic flexibility and energy efficiency and makes us incredibly strong and resilient human beings.

### TIMES OF FEASTING

Growth, Building and Reproduction is Favored over Cell Cleansing and Healing

### TIMES OF FASTING

Cell Cleansing and Healing is Favored over Growth, Building and Reproduction



## Benefits of Fasting

Regular fasting and intermittent fasting can have incredible benefits for your health. It can improve your life physically, mentally, emotionally, and spiritually.

Some of its top benefits include:

- Stimulating fat burning (47, 48, 49, 50)
- Improving energy levels (51, 52)
- Reducing inflammation (53)
- Taking stress off the digestive system (54)
- Stimulating cellular autophagy (55)
- Improving genetic repair mechanisms (56)
- Stimulating the development of stem cells (57, 58)
- Improving insulin sensitivity (59)
- Reducing the risk of chronic disease (60)
- Improving your relationship with food
- Enhancing mental health (61)
- Spiritual growth and fine-tuned intuition



“When you fast, your body gets really good at using energy in the most efficient manner possible.”

DR. DAVID JOCKERS





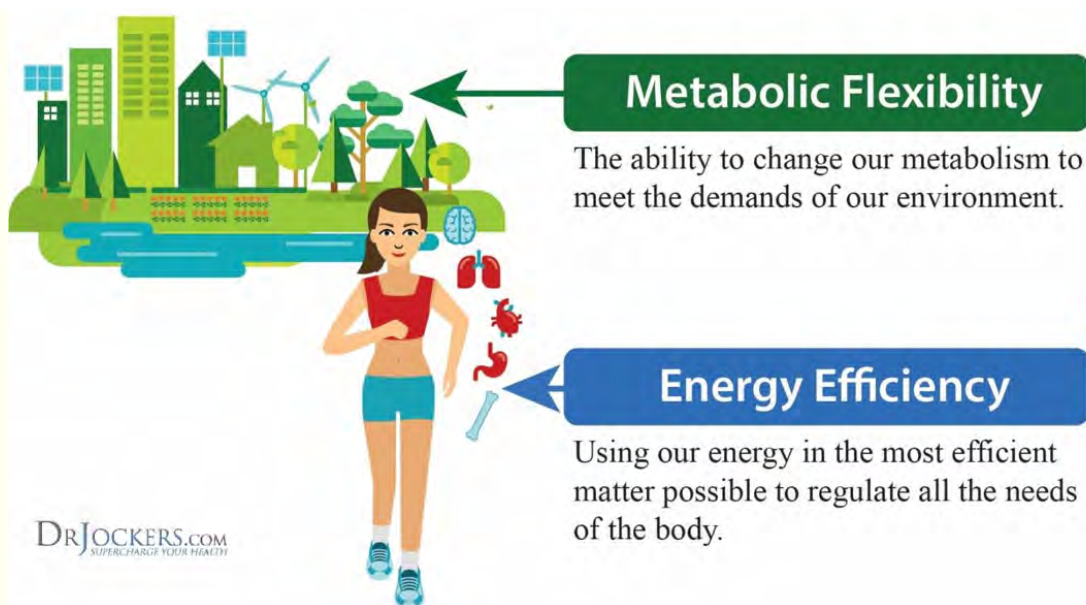
# Why Feasting is Just as Important

While fasting is a highly effective way to stimulate autophagy, you have to remember that feasting is just as important. Too much autophagy can become a problem as well. You need to stimulate the mTOR and insulin pathways to produce energy on a regular basis. Long-term calorie restriction can lead to too much autophagy, which can result in muscle wasting, as well as compromised thyroid and sex hormone activity (62).

Feast-famine cycling can help to regulate cell-growth and cleansing pathways, create hormonal optimization, improve lean body tissue development, balance inflammation, and immune activity, enhance mental health and emotional well-being. Fasting is a time for cell cleansing and healing, whereas feasting is a time for growth, rebuilding, and reproduction.

Our ancestors went through a feast and famine cycle regularly and it is literally built into our DNA. Our ancestors didn't purposely fast, but simply didn't eat when food wasn't available during a famine. However, they feasted or ate until they were full when food was available.

Back in the day, refrigeration and other modern food storage techniques were not available, and they never know when the next meal would come. Since food wasn't always guaranteed, and they would frequently have to go without food for days, your ancestors used the opportunity to feast and rebuild their energy from nutrient-dense food whenever they could.



## Cycling Through Feast Famine Periods

Intermittent fasting and other forms of fasting are utilizing your body's ancient wisdom in your DNA carried on from your ancestors. If you want to take care of your body the way it was designed to, through fasting, it is important that you are equally focusing on both fasting and feasting.

When you are feasting on healthy, nutrient-dense foods, you flood your body with essential nutrients it needs to repair and create health. You stimulate metabolic pathways that are needed to burn fat for fuel and have proper lean body tissue development.

What you need to remember is that you need to create a healthy balance between fasting and feasting. When you are fasting, fast, don't cheat with small snacks here and there. However, when it's time to eat, feast until you are full and satisfied. Don't overeat, but don't limit yourself. Satisfy and nourish your body with much-needed nutrients from healthy foods.

### *Hormone Optimization on Feast-Famine Cycling*

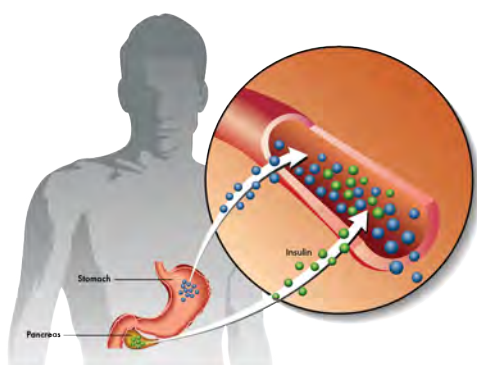






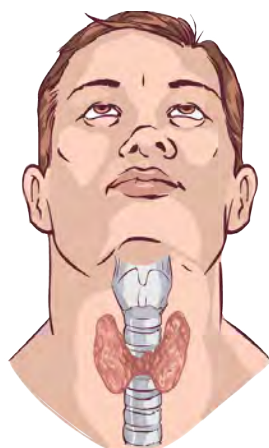
## Feast Famine Cycling and Hormone Balance

When you are practicing intermittent fasting, it is essential that you are practicing feast-famine cycling for hormone balance. Prolonged calorie restriction can be hard on your body and disrupt your hormones, including your insulin, thyroid, adrenals, and sex hormones. Fasting can show your body that it's safe and prevent hormonal problems.



### Insulin

Continuously stimulating your insulin hormones is not ideal, instead, you want to raise it strategically. You don't want your body to think that it's starving long term. Raising your insulin levels strategically through feast-famine cycling tells your body that you are not in starvation mode. This can help to convert inactive T4 and active T3 thyroid hormones as well and create a healthy balance within your body.

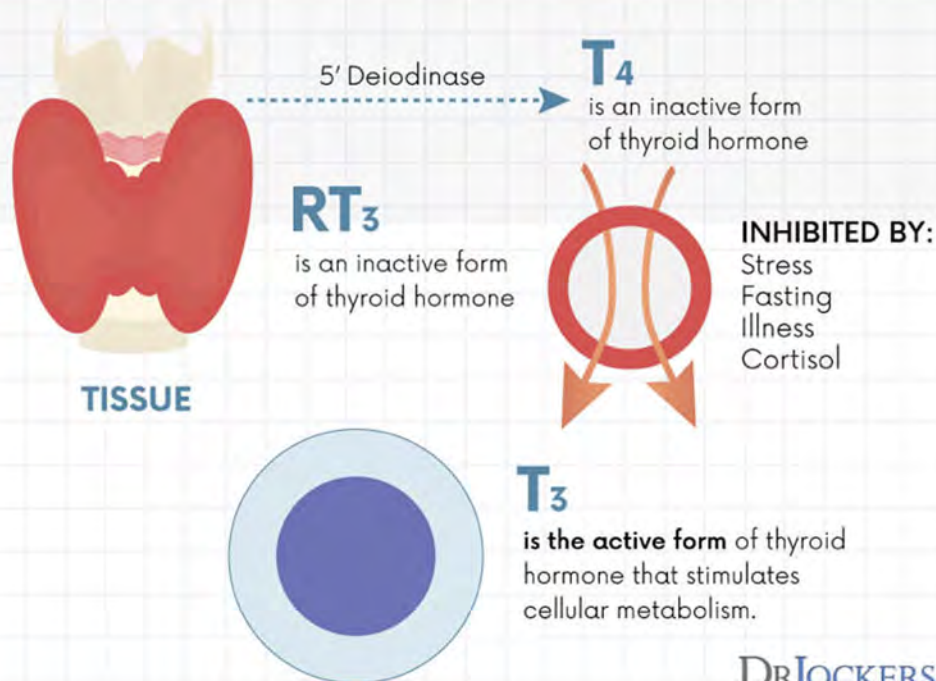
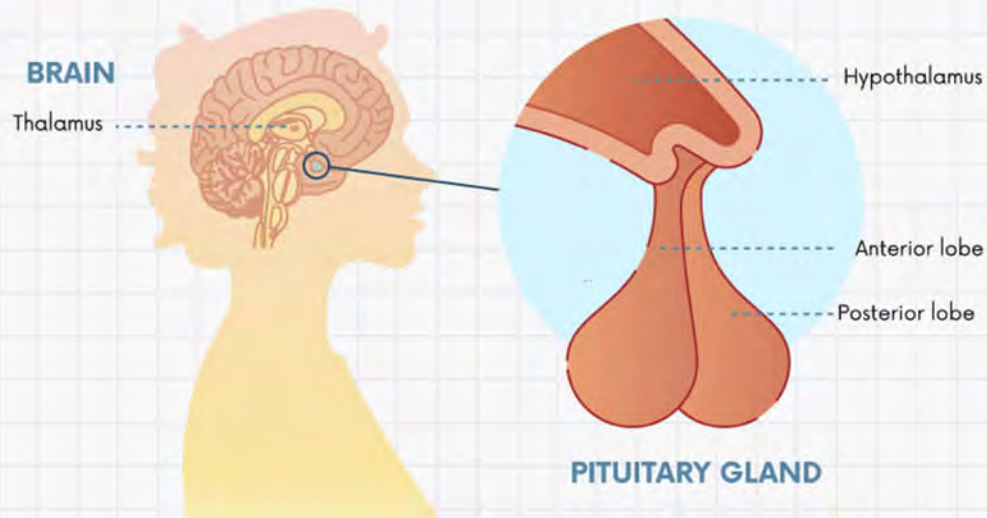


### Thyroid

Prolonged calorie restriction can be stressful on your body. It can lower active thyroid hormone levels, slow your metabolism, and cause hypothyroid symptoms. On the other hand, feast-famine cycling can help your body to balance this problem, and maintain optimal thyroid functions (63).



## GLANDULAR PORTION OF THE THYROID SYSTEM



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### Factors that Cause Too Low an Insulin Level

- Prolonged caloric restriction
- Prolonged fasting
- Prolonged state of nutritional ketosis

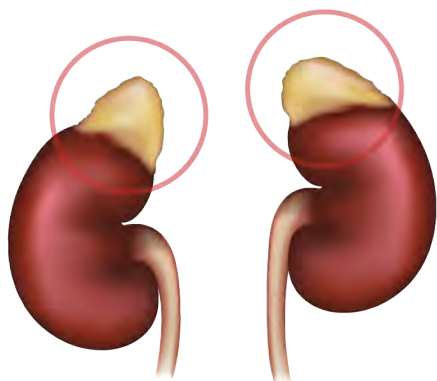
\*\*These factors do not impact everyone the same. Some are more prone to low insulin than others.

Insulin is necessary for conversion from inactive T<sub>4</sub> to active T<sub>3</sub>.

Insulin resistance from poor diet and stress blocks T<sub>4</sub> to T<sub>3</sub> conversion.

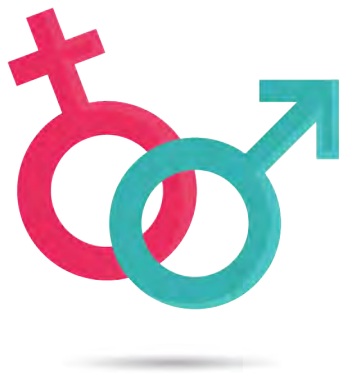
Too low an insulin level may block T<sub>4</sub> to T<sub>3</sub> conversion and could increase rT<sub>3</sub> levels.





## Adrenals

Prolonged calorie restriction can make your body to release more cortisol than normal, thus put more stress on the body, and lead to elevated cortisol levels, sleep problems, fatigue, slow recovery, muscle wasting, and adrenal fatigue. Feast-famine cycling can help your body to balance your hormone levels and prevent adrenal fatigue (63).



## Sex Hormones

Prolonged calorie restriction puts stress on your body and may tell the body that the conditions are not good to reproduce. To protect your body and prevent the development of a future baby under unsafe conditions, your hormone levels may decline. Female bodies are particularly sensitive to calorie restriction and restrictive diets.

When your sex hormones are not functioning well, they cannot communicate with the ovaries in females, which may result in irregular periods, amenorrhea, infertility, poor bone health, and reduction in ovary size. Underproduction of sex hormones can cause a loss of lean body tissues, libido, mental and physical drive in all sexes (64, 65, 66, 67).

Feasting intermittently helps your body understand that food is prevalent, it is available at regular cycles, and the conditions are good. It helps you to get the full benefits of reduced inflammation and increase autophagy through a feast and famine cycle with proper hormone balance for mental and physical performance.



# Intermittent Fasting For Women

Women can get great benefits from intermittent fasting but they need to be cautious as they get started in order to prevent hormonal dysfunction.

## BENEFITS OF INTERMITTENT FASTING

- Reduces Inflammation and Improves Fat Burning
- Improves Metabolic Flexibility, Mental Health and Energy Levels
- Anti-Aging Benefits for Skin, Joints and Complexion

## KEY CONSIDERATIONS TO REMEMBER

- Women Tend to Have a More Sensitive Stress Response than Men
- Fertility Hormones May Be Sensitive to Longer Periods without Food and Nutrients
- Hunger and Satiety Hormones May Be Impacted Negatively

## INITIAL FASTING STRATEGIES TO APPLY

- **Simple Fast** - 12 Hours Overnight Between Meals Daily
- **Brunch Fast** - 14 Hours Overnight Between Meals Daily
- **Crescendo Fasting** - 16 Hours Overnight Between Meals 2 Days Per Week.

*\*\*If you feel good with these, you can continue to progress the intensity of the fast where you would increase either the amount of time fasting or the frequency\*\**

## CHECK POINTS

- Monitor How You Are Feeling on a Daily and Weekly Basis
- Make Sure You Aren't Overwhelming Your Body with Stress

## REASONS TO REDUCE THE INTENSITY OF THE FAST

Energy Drops

Brain Fog

Major Mood Swings

Insomnia

Feel Cold All the Time

Hair Loss

Heart Arrhythmia

Menstrual Irregularities



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## How to Implement Feast Famine Cycling

When you are practicing intermittent fasting, it is important that you remember that the goal is not necessarily to eat less overall, just to simply eat less often. I'm not a fan of counting calories. It is better to listen to your body cues and needs and fill up on nutrient-dense foods until you are satisfied.

However, if you find that you are struggling with this approach, it may be helpful to know that you are under- or overeating with the help of temporary calorie counting.

### *How to Implement Feast-Famine Cycling*

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- Gently Move Into a Ketogenic Lifestyle
- Avoid Snacking
- Develop Your Fasting Muscle
- Improve Hydration During Fasting Window
- Get Regular Exercise
- Keep Stress Down and Prioritize Good Rest
- Improve Digestive Health
- Consider Digestive Health Supplements
- Eat Until You Are Full



## Gently Move into a Ketogenic Lifestyle to Improve Metabolic Flexibility

The ketogenic or keto diet is a diet high in healthy fats and very low in carbohydrates. It is a safe and effective way to lower inflammation, improve metabolic flexibility, shed body fat, prevent diabetes, improve your energy, and better your overall health. However, when people implement it improperly and too quickly, it can lead to something called the keto flu (68, 69).



Your body has been burning sugar their entire life; hence it may have a poor ability to burn fat at the cellular level. Jumping into keto too quickly can put you in a limbo where your blood sugar levels are too low but you can't effectively burn fat for energy yet. This can lead to a variety of unwanted side effects we refer to as keto flu, such as low energy, dizziness, and more.

However, if you adopt the keto diet slowly, you can avoid these side effects and improve your metabolic flexibility. Even if you are completely new to keto, this gradual approach of shaving of carbs slowly allows your body to fat-adapt effectively.

During your first week on keto, reduce your carbs during the daytime and focus on healthy fast instead. In the evening, you can add some healthy carbs, such as one sweet potato or one cup of carrots. The second week, reduce your evening carb intake by half to half a sweet potato or half a cup of carrots.

For the next two weeks, stick to 70 percent fat, 25 percent protein, and 5 percent carbs in your diet. With this gradual approach, you will be set to live a ketogenic lifestyle. Overtime, you can also implement carb cycling strategies after you have developed the metabolic machinery to get into ketosis.

## KETO METABOLIC MAKEOVER TRANSITION

We taper down on carbs gently over time. This is typically 40-50 net carbs per day each week. In some cases, if the individual is very sensitive, we may add or subtract by 10-20 net carbs per day each week.

If you have already been on a lower carb diet, (under 150 grams of net carbs daily) than this process may only take 1-2 weeks. We will use a longer example here.

### STEP #1:

Take 3-5 days and eat normally and track the amount of net carbs you consume daily. As an example, let's say on the average, you consume 250 net carbs.

### STEP #2:

1st Week Carb Slash: Drop your net carbs by 40-50 grams, so 200 net carbs daily for the first week. Consume the majority of them in the evening with your dinner. Track how you feel.

### STEP #3:

2nd Week Carb Slash: Drop your net carbs by another 40-50 grams in the 2nd week, so 150 net carbs. In this example, consume the majority of them in the evening with your dinner. Track how you feel.

### STEP #4:

3rd Week Carb Slash: Drop your net carbs by another 40-50 grams in the 3rd week, so now you are at 100 net carbs in this example. Consume the majority of them in the evening with your dinner. Track how you feel.

### STEP #5:

4th Week Carb Slash: Drop your net carbs by another 40-50 grams in the 4th week, so now you are at 50-60 net carbs in this example. Consume the majority of them in the evening with your dinner. Track how you feel.

### STEP #6:

Keto Transition: Drop your net carbs into the Keto zone of 20-30 grams daily this week and track how you feel as well as your blood ketone levels at least 2x daily.

Once your ketones are over 0.5 (and ideally over 1.0/mmol), you have hit nutritional ketosis. For some people this takes a few days, for others it can take 3-4 weeks.

If you feel good here, hang out for a while, I would recommend at least 10 days and perhaps even a month before you implement the carb backloading refeed strategies.

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## Avoid Snacking

The feasting and famine cycle is a way to tap into your body's wisdom and improve your health. Your ancestors didn't have snacks handy either during a famine, neither should you snack during the fasting cycle.

Your fast is a period to improve autophagy and cellular renewal. If you reach for snacks during your fasting window, you are essentially breaking your fast. This can lead to blood sugar issues, digestion problems, and you won't be able to experience the benefits of your snack.

You should also avoid snacking during your feasting period. Depending on the type of intermittent fasting you are practicing, you may have one, two, or even three meals during your feasting period. In order to meet all your nutrient needs from high-quality foods, it is best to eat enough during your meals, so you don't go hungry in-between. If you are feeling hungry between meals or during your fasting window, it is a good idea to look at your caloric and nutrient intake and adjust it accordingly to avoid under eating.



“When we bombard our gut with food by constantly eating and snacking, it puts the immune system on alert all the time.”

MIKE MUTZEL



## Develop Your Fasting Muscle

If you've been used to eating three meals and three snacks a day and eating late at night, an advanced fasting regiment can be a shock to your body. Teaching your system to thrive through feast-famine cycling is similar to beginning a new exercise program. It has taken time to become adapted to fasting, and a gentle, gradual approach is key to develop your fasting muscle and create a new routine.

I recommend that you start gently and get used to fasting gradually. Instead of jumping into OMAD (one meal a day) or 2 or 3-day water fast, start with a Simple Fast with a shorter, 12-hour fasting window.

Once that becomes easy for you, you can reduce your eating window and add more fasting days to your weekly schedule using Crescendo or Cycle Fasting. Gradually tighten up your eating window as long as you feel good. If you are ready, you can eventually move up to a daily intermittent fasting schedule.

### 7 WAYS TO DO DAILY INTERMITTENT FASTING



Simple Fast:	12 hours
Brunch Fast:	14 hours
Crescendo Fast:	16 hours - 2 days per week
Cycle Fast:	16 hours - 3x weekly
Strong Fast:	16-18 hours daily
Warrior Fast:	19-21 hours daily
1 Day Fast:	Full 24 hour fast each week

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# Improve Hydration During Fasting Window

Proper hydration is absolutely critical during your fasting window. During your fast, your body will lose a lot of water when using up stored glycogen in your muscles and liver. As your insulin levels drop, you may use more water and sodium than normal. If you get dehydrated during your fasting window, you are more likely to feel tired, dizzy, achy, and constipated.

I recommend that you drink 32 oz water upon waking during the morning of your fast and drink continuously during the day. Adding a pinch of Himalayan sea salt or Celtic salt to your water is helpful to replenish your electrolytes. Adding some lemon or lime to your water add extra vitamins and minerals, and help detoxification and digestion.

## Key Tips for Optimal Hydration

### Get Pure Filtered Water

Use reverse osmosis or distilled water or some sort of very good filtration to get toxins and impurities out of the water.

### Use High Quality Salts

Use a really good sea salt like Redmond's Real Salt, Celtic Sea Salt and Himalayan Sea Salt

### Wake Up With Water

Drink at least 8-16 oz of water within the first 20 minutes of waking and aim for 32 oz of water before eating anything.

### Think Water First

Before you think about snacking, always consider water and drink at least 8 oz and see if the hunger, cravings or desire for food goes away.

### Drink Continuously

Drink at least 4 oz every 30 minutes throughout the day. Stop drinking about 15 minutes before a meal, drink very little with the meal and then pick up your hydration beginning 30-60 minutes after your meal.

### Reduce Alcohol and Caffeine Consumption

You can use these in moderation but overdoing it, such as more than 2 servings combined of alcohol and caffeine per day can easily dehydrate you.

### Flavor Your Water with Stevia

Add stevia drops which have no calories, no chemicals, are natural and give a great flavor to your water. Most people find it much easier to hydrate with the stevia drops.

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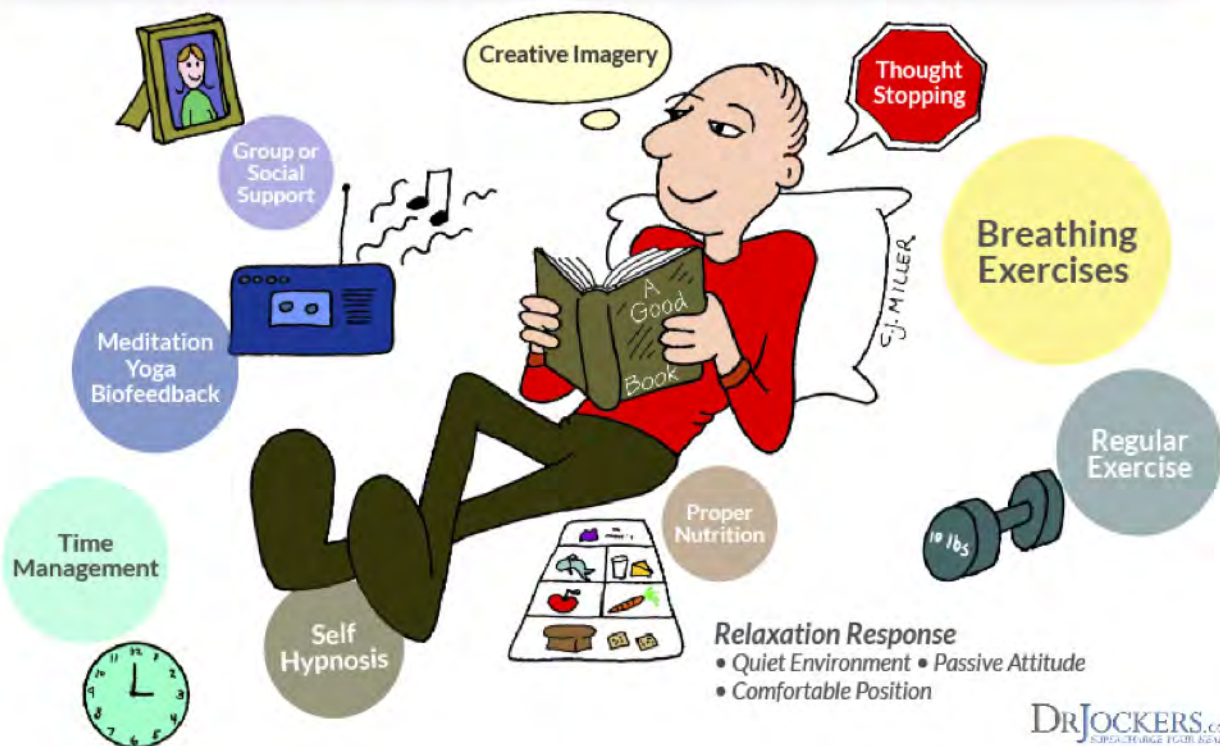
## Regular Exercise

Regular exercise can enhance the benefits of intermittent fasting. Regular movement can help you build muscles, improve your flexibility, improve your cognitive ability, boost your mental health, and reduce your risks of various diseases, such as Parkinson's disease, multiple sclerosis (MS), and cancer (70, 71, 72, 73, 74).

Strength training, such as weight lifting and body weight exercise can help you to build and hold onto your muscle. Resistance training can improve your strength, flexibility, and motor control. High-intensity training (HIIT), interval training, circuit training, and sprints are a fantastic way to increase your muscle mass.

HIIT is particularly great because it combines cardio and strength training in one short workout. During your fasting window, I recommend sticking to low-impact exercises, such as yoga, pilates, and light walks.

## Stress Reduction Method



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# Improve Digestive Health

If you are used to eating smaller meals or snacking throughout the day, feasting during a shorter eating window than before may be difficult on your digestive system at first. If you've been dealing with digestive problems or have been living on too much junk food with refined sugar and refined fats, chances are your digestion needs a bit more support to function optimally during the feast-famine cycle. I recommend that you support your digestive system with some high-quality herbs and supplements.

Eating high fiber foods, such as nuts, seeds, greens, and non-starchy vegetables can help you to be regular if constipation is a concern. Bitter herbs, such as ginger, parsley, fennel, basil, thyme, and oregano are a fantastic way to stimulate your digestive juices.

Add them to your cooked meals, salads, and green smoothies, and look for supplements with them. Drinking apple cider vinegar (ACV) mixed with water or lemon water before meals can enhance digestion and absorption, and reduce the risk of bloating and acid reflux.

## 10 Strategies to Improve Digestion Health



Use Digestive Enzymes with Meals



Use Lemon, Lime or Apple Cider Vinegar with Meals



Use Carminative Herbs Like Ginger, Rosemary and Fennel



Eat Protein Foods Closer to the Beginning of the Meal



Super Hydrate Outside of Meal Times



Use Fermented Veggies



Drink Very Little with Meals



Steam Your Cruciferous Veggies



Hold Off on Water Until at Least 30 Mins After a Meal



Eat Your Largest Meal When You are Most Relaxed



Above All Else, Be Happy and Grateful When Eating!

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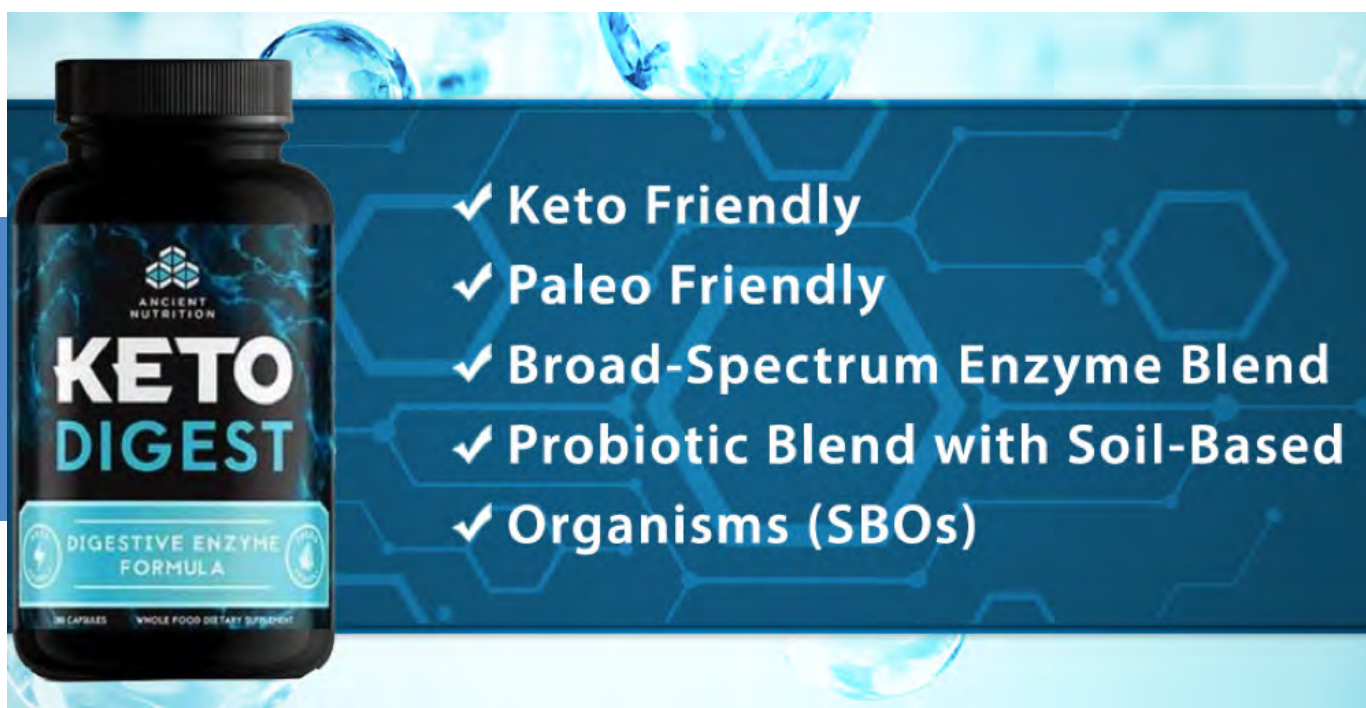


## Consider Digestive Health Supplements

It is important that you support your digestive system with some high-quality supplements when feasting. Taking digestive enzymes can help your body to digest your food and absorb your nutrients easier and more effectively. I recommend taking **Super Dzyme** or **Keto Digest** which are powerful groups of plant based enzymes to help the body digest and assimilate nutrients better. Consider the use of the use of stomach acid support, such as **Acid Pro-Zyme** if eating meat gives you digestive challenges to lower the risk of acid reflux and indigestion.

If you have trouble digesting fat, use **Bile Flow Support™** and BioGest. Bile Flow Support is a specialized liver support formula that provides nutrients involved in bile flow and fat metabolism, including choline, taurine, and methionine. **BioGest** is a blend of hydrochloric acid (HCl), pepsin, pancreatin, and ox bile and promotes digestion of proteins, carbohydrates, and fats. Lastly, if you have no gallbladder consider eating a few smaller meals in your eating window to reduce the risk of digestive troubles while transitioning to feast-famine cycling.

We know that stress is the antagonist to good digestive juice production and is the biggest factor to causes digestive challenges. It is important to be in a relaxed state when you consume your meal so that your body can produce the digestive juices it needs.



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